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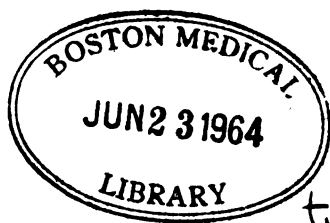
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THE FOOD TRACT
ITS AILMENTS
AND
DISEASE OF THE PERITONEUM

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PREFACE.

THIS work, brief, simple, but practical, has been prepared and is presented to the general practitioner as a result of the author's observation in private, clinical and hospital practice.

The aim in its preparation has been to render a discussion of the ailments of the "Food Tract" in as practical a manner as is possible. An endeavor has been made to introduce as much of the modern methods of treatment as is possible in a manual of this size, while theories and methods of the treatment still unproven have been omitted.

The importance of etiology, pathology and diagnosis have each been duly considered, while more than a corresponding amount of space has been devoted to the subject of tried and verified methods of treatment.

With many defects of which the author is conscious, it is his hope that the general practitioner may find in this work many things which shall render his cases of diseases of the "Food Tract" more intelligent and more satisfactory to treat both for himself and his patient.

31 Washington St., Chicago.

June 1, 1909.

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DISEASES OF THE FOOD TRACT.

THE MOUTH.

THE EXAMINATION OF THE MOUTH.

The mouth forms the upper end of the alimentary canal. It is nearly an oval shaped cavity. Anteriorly it is bounded by the lips and incisor teeth, laterally by the cheeks and the alveolar processes of the superior and inferior maxilla, superiorly by the hard palate and the teeth of the superior maxilla, inferiorly by the tongue and the mucous membrane, by the teeth and the inferior maxilla, posteriorly by the soft palate and the fauces. For an examination of the mouth the patient should be facing a good light. If an artificial light is employed, it should be reflected into the mouth by means of a mirror.

THE LIPS.

In anemia the lips are pale. This is more apparent if the lips are everted. Their mucous membrane is livid in cases of cyanosis dependent upon chronic disease of the heart and lungs. Fissures and their resulting scars are to be found at the angles of the mouth in children with hereditary syphilis. Small cracks are not of so much significance. The lips are dry in febrile diseases and there may be dirty looking crusts adherent to their mucous surfaces.

In facial paralysis the angle of the mouth on the side paralyzed is smooth and depressed. In glosso-labio-laryngeal palsy there is trembling and twitching of the lips with inability to close them.

Herpes appears upon the lips during certain febrile diseases, in inflammatory conditions of the air passages and lungs, especially in croupous pneumonia, and in some women during menstruation.

THE TEETH AND GUMS.

Caries of the teeth should be noted and treated, as it is a frequent cause of gastric derangement. In scorbutus the teeth loosen, the gums become discolored a bluish red, and recede from the teeth. Examination of the teeth and gums for pyorrhea alveolaris should be made. A crescentic excavation of the lower edges of the upper central incisors of the permanent teeth, which are broader at the gums than at the edge and are at a higher level than the surrounding teeth (Hutchinson's teeth), when associated with catarrh of the middle ear and nose and interstitial keratitis, constitutes Hutchinson's triad of symptoms of congenital syphilis. The notch in the lower edge of the upper middle incisors should not be taken alone as a positive proof of congenital syphilis.

Any odor from the mouth should be noted. A foul odor results from caries of the teeth, imperfect cleansing of the teeth and dyspepsia. This odor should be distinguished from the stale foul fetor that emanates from deposits in the mouths of patients who have been very sick for some time, and from the odor due

to some forms of chronic nasal catarrh. A cadaveric odor may be observed in those who have been sick for some time, even when the mouth is cleansed. It may precede death.

The gums present a blue line along their margin in lead poisoning, and a greenish line in copper poisoning. They are swollen and spongy in scurvy, and retracted in pyorrhea alveolaris.

THE TONGUE.

In a normal condition the tongue presents a pinkish color, has firm mobile edges and is covered with a slight whitish fur, especially upon its posterior portion. The fur is increased during sleep, especially in smokers. It is dependent upon the bacteria in the epithelium and to the prominent filiform papillæ. The tongue is furred as the result of inflammation of the tonsils and the mouth in general. The furring is most pronounced upon the side on which the disease is most intense.

Pyrexia, acute nervous diseases, epileptic states, neuralgia, a milk or egg diet, acute attacks of gastric irritation and gastric catarrh are each attended with more or less furring of the tongue, also acute derangement of the liver and diarrhea. In gastric ulcer and gastric insufficiency it is usually clean, while in cancer of the stomach it is variable.

In anemia, Bright's disease and wasting diseases, the tongue is broad, pale, flabby and clean. It may be edematous in Bright's disease. Dryness of the tongue is observed when there is a diminution of the

amount of saliva secreted. This is also observed in pyrexia, in cases where there is an excessive amount of water excreted from the body, as well as in dilatation of the stomach.

A dry encrusted brown tongue with the lips and teeth covered with sordes is characteristic of toxemia. The characteristic tongue of nervous people is pale, often dry, but may be covered with a thin froth. A dry tongue becomes moist in cases of diabetes as the polyuria diminishes. A moist tongue indicates increased functional activity, except in septic fevers, when it may be the reverse.

The papillæ of the tongue are enlarged during various conditions. The fungiform enlargement occurs in children during febrile diseases and disturbances of the gastro-intestinal tract, and gives rise to what is known as the "strawberry tongue" in scarlet fever. This is also observed in diseases of the thorax, inflammation of the brain and the meninges, and diseases of the mucous membrane of the stomach and bowels, and other forms of infection. Various irritating conditions of the abdominal viscera are indicated by the reddened tip and edges of the tongue.

A dry tongue with a dry streak in the centre, which is red, sleek or glossy, may indicate gastric disturbance or typhoid fever. A similar condition is at times present in cerebral congestion, and in cases of delirium. Should the tongue become dry, red and cracked, intestinal ulceration is probably present.

A pale tongue is present in anemia, chlorosis, dropsy, during spasms, and following hemorrhages.

The appearance of a paleness of the tongue during acute infectious diseases and gastric and intestinal fevers indicates a fatal termination.

A lead colored tongue is observed in gangrene of the stomach or lungs, in cholera, in scirrhus of the tongue, in thrush, and is an indication of approaching death.

A bluish tongue is present in impaired condition of the circulation of the blood and a lack of oxygenation, and is observed in asthma, croup, diseases of the heart and lungs, dropsy, scurvy and cyanosis.

A yellow coating usually indicates intestinal or hepatic torpor. A coating at the tip of the tongue is found in tuberculous subjects. A coating upon one side of the tongue is present in diseases of the liver and spleen, and in cases of prosopalgia, paralysis and pulmonary disease limited to one lung. A fissured tongue is observed in diseases of the kidney and in irritations of the nervous system. A large and long tongue is observed in idiots and in chronic hydrocephalus. A full, broad, thick tongue is present in weakness and atonic condition of the mucous coats of the digestive canal.

A thick, swollen tongue is present in cretinism, rachitis, chronic hydrocephalus, obstinate dyspnea, mercurial ptyalism, and catarrhal affections, and inflammation of the tongue in old drunkards and it may be a forerunner of apoplexy.

A narrow, pointed, thin, pinched tongue indicates atrophy, hemorrhages, consumptive diseases, and loss of functional activity of the digestive organs.

When the tongue is protruded, promptly and decidedly the indications are that the brain and nervous system are not impaired. When the tongue is inclined to one side or is controlled with difficulty, there is evidence of cerebral disease. Trembling, stammering and immobility indicate softening of the brain or a typhoid condition.

CARE OF THE MOUTH.

Owing to the function and location of the mouth it becomes a culture field for bacteria; so cleanliness is all important, for the mouth and pharynx are frequently the avenues through which systemic infection takes place. The mouth should be washed, and the throat gargled once or twice a day with pure water, or water in which some mild non-irritating and non-toxic antiseptic has been added.

All mechanical sources of irritation to the mucous membrane should be removed, as sharp teeth, badly fitting plates, and amalgam fillings, as the mercury occasionally may be injurious. In children, improper nipples and "pacifiers" should be forbidden, and deformities and injuries of the mouth should be cared for. Care should be exercised that food is not taken too hot or too cold. In older patients irritating drugs are taken, or tobacco is used to such an extent that it produces an irritation. In all diseases of childhood, especially those of faulty nutrition, and in adults, especially those of intestinal auto-intoxication, prolonged fevers, tuberculosis, and diabetes mellitus, cleanliness of the mouth should be insisted upon.

The introduction of the harmful bacteria should be guarded against, both in adults and children. The mouth of the child should be cleansed with some form of soft material dipped in cold water. The hands of the child that plays upon the floor should be washed frequently, that they may not carry infection to the mouth. The teeth should receive careful attention and be thoroughly cleansed after each meal. By these means cases of pyorrhea alveolaris may be avoided. If a tooth powder is employed it should be one that in no way injures the enamel of the teeth, chemically or mechanically.

INFLAMMATION, CRACKS AND FISSURES OF THE LIPS.

Apart from general affections, inflammation of the lips occurs as a result of exposure to cold, and when this is complicated with cracks and fissures it causes considerable distress. Fissures situated at the middle of the lips are frequently associated with a strumous diathesis and there are frequently enlarged cervical glands in these cases. Fissures are often the result of a local irritation, as drawing a thread over the lips before threading the needle. Cracks at the angle of the mouth are at times present in syphilitic subjects. In these cases the crack usually contains pus and there is a sodden condition of the surrounding tissue.

Treatment.—These cases all require careful investigation to arrive at the particular cause which should be removed. The part should be thoroughly cleansed and a bland non-irritating cerate applied. Cases that are dependent upon a constitutional diathesis should

receive the indicated remedy. The remedies most frequently indicated are *Graphites*, *Hepar sulphur.*, *Silicea*, *Sulphur*, *Petroleum*, *Mercurius*, *Calcarea carb.*, and *Antimonium crudum*.

Extra-genital chancre is found upon the lips more frequently than upon any other portion of the body. It should be differentiated from carcinoma of the lips. The treatment is that of chancre in general.

CARCINOMA OF THE LIP.

This most commonly develops in the lower lip; but has been observed on both lips. It is a disease of adults and advanced life. Pipe smoking is a predisposing cause, while abrasions and wounds are also causes.

Symptoms.—It first appears as a fissure, an ulcer or an excoriation that refuses to heal, as a warty growth, or as a tubercle covered with a scab which recurs when it is removed. The ulceration gradually extends, and is surrounded by a hard indurated surface. The edges of the ulcer are abrupt and everted. There is some degree of pain, and hemorrhage may occur. Gradually the process extends and the sub-maxillary glands become enlarged and infiltrated.

Diagnosis.—This is based upon the age, sex and habits of the patient. An ulcer of the lip in a man over 45 that does not yield readily to treatment should be considered cancerous and a microscopic examination made. Cancer develops slowly and is attended by a progressive cachexia.

CARCINOMA.

1. Most frequently in men.
2. Seldom occurs before forty.
3. Progress of development is slow and there is a tardy involvement of the glands.
4. A cancerous cachexia is developed gradually and is not influenced usually by internal treatment.

CHANCRE OF THE LIP.

1. Is observed more frequently in women
2. At any age.
3. Chancre advances rapidly, lasts but a few weeks and the glands are soon involved.
4. Secondary symptoms develop and the disease is modified by internal treatment.

Prognosis.—This is fairly good if surgical procedure is undertaken early before the maxillary or parotid glands are involved in the process. If the cancerous process has reached surrounding tissue the prognosis is less favorable. The further inward upon the mucous surface the growth begins, the more malignant it is.

Treatment.—This consists in radical extirpation, together with the removal of all anatomically related glands. Following this the patient should be treated constitutionally.

Psorinum.—If long lines are drawn through the clinical history of many of these cases, this remedy will be found indicated. The patient is exhausted, feels tired out, and is thinner than normal. The lips are painful and swollen and burning. The skin is generally unhealthy. The perspiration is offensive and if ulceration has taken place the discharge has a carrion-like odor.

Arsenicum album.—This remedy has had an extensive clinical history in the treatment of phagedenic

carcinomatous ulceration. The patient is weak and exhausted and the ulcer is attended with a burning sensation as from glowing coals. There is a black necrotic discharge from the affected parts.

Conium and *Bryonia* should be studied in cases characterized by stitching, darting pains.

Sulphur should be remembered in all cases for its constitutional effects.

In inoperable cases, or when an operation is denied by the patient, and after operations, the use of radium and the X-ray should be borne in mind. The latter is the most hopeful treatment, when operation has failed.

Injections of Merck's pyoktanin blue 1-300 or of corrosive sublimate 1-1000 may be tried; about 15 minims are employed at a time; six injections at eight day intervals are given.

The ulcerated surface should be kept clean by a solution of hydrogen peroxide, potassium permanganate 1 to 500, or corrosive sublimate 1 to 5000. Following the cleansing, a sedative wash should be employed that will relieve the pain and control the fetor. Iodoform acts as a deodorant and analgesic when applied to the surface. A good combination is *Iodoform* one part, oil of *Eucalyptus* eight parts, *vaseline* and *paraffin* of each four parts. *Orthoform* is also a local anesthetic powder that is of service. If there is a bloody oozing, a compress of alcohol or *Hamamelis* will be found useful. *Thuja*, both locally and internally, has proven of benefit. An excellent application is prepared from one drachm of oil of tar,

one ounce of gypsum and sufficient olive oil to make a paste. This should be applied to the surface and will be found to control the fetor and relieve the pain.

NEVI.

As a rule upon the lips these are small and they may be removed by electrolysis, the galvano-cautery or dissection. If the nevus is small, constitutional remedies may be sufficient. *Thuja*, *Calcarea fluorica*, *Phosphorus* and *Lycopodium* have each proven serviceable according to the indications.

HERPES FACIALIS.

Synonyms.—Fever blisters, cold sores.

Etiology.—These accompany catarrhal disorders of the nose, throat, bronchial passages and of the lungs; also typhoid and malarial fevers. They are observed with acute coryza, tonsillitis, bronchitis and indigestion.

Pathology.—This consists of an enlargement and coagulation necrosis of the cells in the upper layer of the rete mucosum.

Symptoms.—These are burning, itching and some pain, followed by the appearance of one or more groups of vesicles.

Prognosis.—It is a benign disease with a course of from five to fourteen days. It recurs from time to time.

Treatment.—The prophylactic treatment consists in the correcting of indigestion, and of any nose or throat trouble that favors recurrent catarrh. Cold

spinal sponging, followed by thorough rubbing, is beneficial in overcoming the tendency. Spirits of camphor may be used locally to abort the vesicle. The crust which follows the vesicle should not be detached too early. If there are extensive groups of vesicles on the face, boric acid compresses or calendula cerate gives relief.

Natrum muriaticum.—This remedy produces a similar condition, together with the catarrhal symptoms, and should be studied in these cases.

Rhus tox. is another remedy that gives rise to much the same symptoms, as the result of chilling when over-heated.

Bryonia alba is indicated when the crops of vesicles are accompanied with fever and great lassitude.

Arsenicum album and *Hepar sulphur.* should be studied if herpes recurs at definite intervals.

Aconitum napellus.—When there is fever, restlessness and anxiety.

Graphites.—When the affection becomes chronic.

THE TEETH.

In the treatment of gastro-intestinal diseases the condition of the teeth should be considered. Their care is usually intrusted to the dentist, but there is much that is within the province of the physician. Caries of the teeth may be avoided to a degree by attention to the diet. An excess of rich food, sweets and proteids results in such a reaction of the secretion of the mouth that it favors the development of caries. The mouth should be regularly cleansed.

Irregularity and caries of the teeth should be cared for. Caries of the teeth is a cause of gastric disease, as well as of a general infection of the body by pathogenic bacteria that results in acute and chronic tonsillitis, pharyngitis, otitis, and infection of the cervical glands. Of the more remote effects of diseases of the teeth should be mentioned ulcerative endocarditis, meningitis, obscure septic anemia, complicated by purpura hemorrhagica, pyemia, and osteomyelitis. In fact, diseased teeth may be the cause of any type of disease to which pyogenic bacteria may give rise. Oral sepsis is a most important condition. Not alone does caries of the teeth interfere with the task of the physician, but the absence of teeth and improper mastication should be considered in dealing with gastric and the intestinal diseases.

When the temporary teeth decay they should be filled, rather than to have the teeth extracted before the jaw has developed.

In children if the teeth are peg shaped, *Mercurius vivus* 12x or *Syphilinum* 200 should be given. Of the former remedy, a dose once a day, or every other day, of the latter a dose once or twice a week. If the teeth of the child first become yellow, then dark, and finally decay, *Creosote* should be studied. When they become black in creases or spots, and crumble away as soon as they appear, *Staphisagria* is of service. In adults when the teeth are sensitive to the least touch and ache after eating and drinking, *Staphisagria* should be considered. When the teeth are sensitive, *Calcarea fluorica* should be remembered. When they

feel sore, decay rapidly, and the gums bleed, *Plantago* should be studied, and *Phosphorus* should be remembered when there is a general necrosis of the jaw and caries of the teeth. *Mezereum* and *Mercury* and *Silicea* are remedies that have a decided action in maintaining the nutrition of the teeth.

PYORRHEA ALVEOLARIS.

Synonyms.—Rigg's disease, spongy gums.

Etiology.—This is not fully determined. It may develop during chronic dysentery, influenza or enteric fever, or may result from excessive smoking and traumatism of the mucous surfaces that affords bacteria a favorable culture medium. There are also various pathological conditions of a constitutional character which create a favorable soil for the development of pyorrhea alveolaris. Of these constitutional diseases scrofula, rachitis, syphilis, tuberculosis, tabes dorsalis, gout, chronic catarrh of the stomach, chlorosis and other debilitating diseases should be mentioned.

Pathology.—The process begins as a purulent inflammation of the gums, which in time extends to the bone and causes an osteoporotic form of atrophy of the alveolar process, and results in loosening the teeth. The periodontal membrane becomes inflamed and pockets of pus are formed which extend along the roots and destroy the tissue of the gums and the alveolus. The alveolus is absorbed and the fangs of the teeth become coated with a layer of thin, hard, greenish-brown tartar.

Symptoms.—There is a spongy condition of the

gums which gradually recede from the teeth. When the gums are pressed upon, a quantity of pus oozes from around the teeth. In time there may be a complete separation, so that the teeth become loose and may fall out. A culture of the material about the teeth shows streptococci or staphylococci.

Prognosis.—Many of these cases are persistent and require the closest attention on the part of the patient to details, as well as the skill of the dentist and physician to produce beneficial results. In mild cases, when only the bone that contains no marrow is involved, attention to the teeth, the removing of tartar, and use of a cleansing, disinfecting solution is sufficient. But in the more advanced cases in which the bones are more deeply involved, the local condition and the general health of the patient must receive the closest attention to produce any result.

Sequelæ.—The constant drain of septic material into the stomach in time proves detrimental to health, and secondary anemia results. There is no doubt but that it has also been responsible for cases of persistent chronic diarrhea, cases of rheumatoid arthritis and many constitutional diseases.

Treatment.—This usually requires the skill of the dentist as well as the physician. The mouth must be kept clean. The teeth should be repeatedly brushed. If the secretions of the mouth are acid, a mild alkaline wash should be employed. If there is much pus, the gums should be sprayed with a ten per cent. solution of peroxide of hydrogen. Pyrozone 2 to 5 per cent. solution is of service as a stimulant

and in checking suppuration. After a thorough cleansing with peroxide, the parts may be brushed with a saturated solution of sodium chloride, or the gums carefully painted with a solution consisting of equal parts of iodine, carbolic acid and glycerine. The teeth should be kept clean and all the raw surfaces should be cauterized.

The general treatment is that of the remote cause, as chronic intestinal autointoxication, or of gout, chlorosis or neurasthenia. It will take months to correct this derangement. The chewing of solid foods, such as a hard crust of bread, is of benefit as it tends to improve the nutrition of the alveolus and strengthen the gums and teeth.

In the selection of a remedy for the case, all the symptoms must be considered.

Silicea has been curative in several of these cases, when there was much pus oozing from about the teeth. The patients were pale-faced, weakly and anemic. They were over-sensitive both physically and mentally, and complained of being chilly, even when taking exercise. The teeth were sensitive and had tartar formation. *Hepar sulphur.* should be carefully compared with *Silicea*.

Carbo vegetabilis is indicated in those cases when the patients present a cachectic appearance. They are weakly and easily exhausted. The face is pale and of a grayish-yellow. The teeth are loose and bleed easily. The digestion is disturbed and the simplest food disagrees. There is a large accumulation of gas in the stomach and intestines and eructations give temporary relief.

Mercurius corrosivus.—This and other preparations of mercury have been of service when there was more or less ulceration of a corroding character with the formation of pus. The teeth are loosened, the tongue is broad, and there is frequently an atonic condition of the bowels.

Nitric acid is indicated in thin, nervous patients, who take cold easily, have more or less stomach difficulty and are disposed to diarrhea. There is frequently a syphilitic or other type of infection.

Echinacea angustifolia.—This remedy should be remembered and studied with *Baptisia* in septic cases.

GUM BOILS.

This is an infection secondary to caries of the teeth. There is usually a periostitis of the root of the tooth.

The treatment is surgical, consists in a thorough incision and cleansing of the cavity with peroxide of hydrogen. Following this the decayed tooth should be cared for.

EPULIS.

This is a tumor growing from the periosteum and alveolar process and sockets of the teeth. It may be simple or malignant. A microscopical examination of a portion of the growth should be made. It should be dealt with according to the degree of malignancy.

ACUTE GLOSSITIS.

Definition.—This is an acute inflammation of the mucous membrane and parenchyma of the tongue.

Etiology.—It is frequently dependent upon exposure to cold, especially among alcoholics. It may result from injury, as the biting of the tongue, or from infection. It is more common among men than women.

Pathology.—The inflammation undergoes resolution speedily as a rule, but abscess may be the result.

Symptoms.—There is pain, difficulty in speaking, swallowing and breathing in severe cases. The tongue is increased in size, projects beyond the teeth and depresses the jaw. Its surface is dry, brown and even black, and the breath is offensive. The condition lasts for three or four days, when it subsides, or an abscess forms. When an abscess forms, it requires prompt evacuation of the pus. At times the inflammation is confined to one side of the tongue, and is known as hemiglossitis. It is usually milder than when it is general. In the case of chronic alcoholics, hemorrhage may take place into the substance of the tongue.

Diagnosis.—Acute glossitis should not be mistaken for any other disease. Circumscribed suppuration may be mistaken for a cystic tumor.

Prognosis.—In the simple form the prognosis is favorable, while in suppurative cases it is grave.

Treatment.—The habits of the patient should be corrected, the bowels should be cleaned out, and antiseptic mouth washes used. The diet should be so prepared that it does not require much mastication. If an abscess forms it should be opened and drained, and in some cases longitudinal incisions through the tongue should be made.

Aconitum napellus.—This remedy should be given if the case begins with chill, high fever, and restlessness; and *Belladonna* if there is redness, heat and dryness of the parts.

Mercurius should be remembered if there appears upon the tongue a slimy coating with copious salivation and suppuration. If edema becomes a prominent symptom and suppuration is threatened, *Hepar sulph.* and *Calcarea sulph.* should be studied.

CHRONIC GLOSSITIS.

Etiology.—It is frequently dependent upon the irritation of a broken tooth or the stem of a pipe. It is often present in alcoholism or chronic dyspepsia.

Pathology.—There is a shedding of the superficial epithelium, and a destruction of the papillæ, with thickening and an increased vascularity of the corium.

Symptoms.—The tongue presents a smooth, glossy appearance; at one point it may be red and raw looking, while at another it is smooth and white as though touched with caustic. The organ may be swollen and indented by the teeth and perhaps ulcerated. There is stiffness of the organ, which is worse while speaking and eating.

Diagnosis.—This is usually easy, but there is a possibility of mistaking this condition for syphilis.

Prognosis.—This condition favors the development of carcinoma.

Treatment.—The patient's habits and diet should be regulated, the food should be nutritious and easily

digested. Tobacco and alcohol should be stopped. Rough and irregular teeth should be corrected, they should be cleaned regularly. The bowels should be kept regular by exercise, habit and diet, and such remedies employed as are indicated.

GEOGRAPHICAL TONGUE.

This is observed most commonly in children who are weakly and subject to digestive disturbances. It begins in a small patch which is smooth and red and the same level as the tongue or slightly raised. This soon spreads and forms a circle. Several of these occur at the same time. The outline is not always circular.

There may be no constitutional symptoms. Its course is chronic, but it has no effect in shortening life.

Treatment.—This consists in the use of some mild wash and such constitutional remedies as seem to be indicated.

Mercurius vivus is useful in these cases when there are patches like islands on the tongues of children who crave fats. The tongue is soft and flabby and the edges are indented by the impression of the teeth.

Mancinella should be studied in cases in which the tongue is coated white except in several sharply defined clean spots. The saliva is increased and fetid.

Ranunculus scleratus is of service in these cases when there is desquamation of the tongue in spots.

Sanicula.—This remedy produces many of the symptoms of this disease and should be studied.

Taraxacum may be indicated when the tongue is loaded with a white coating and clears off in patches which are dark red and tender.

ULCERATION OF THE TONGUE.

This embraces simple and traumatic ulcers, aphthous ulcers, mercurial ulceration, tubercle, cancer, syphilis and lupus.

Simple and traumatic ulcers: These are dependent upon carious teeth, ill-fitting artificial plates, biting the tongue, or burns from hot or corrosive liquids. In the majority of these cases there is a chronic superficial glossitis. The ulcers have a smooth, red, glazed surface and are at times very painful. The treatment is very similar to that of chronic superficial glossitis.

Small circular ulcers on the tip of the tongue result from the breaking down of vesicles and pustules. They are very tender and may be found in children, alcoholics and the enfeebled.

There is also an ulcer on the frenum that occurs during whooping cough. In the majority of these cases cleanliness is all that is required.

Tuberculous ulceration of the tongue is rare and is usually secondary to tubercle elsewhere. The ulcer is granular, pale in color and flabby in appearance. If of recent origin, it is superficial, but if of long duration it is deep. It should be distinguished from the syphilitic form by the shallowness, the smaller degree of new growth, the greater enlargement of the lymphatic glands being present in the tuberculous form. The general treatment for tuberculosis should be combined with local antiseptic measures.

Syphilitic ulcer is rare as a primary lesion, and when it does occur is usually on the tip of the tongue. The ulcer is small, hard and prominent and the submaxillary glands are usually enlarged. Secondary syphilitic ulcers are the result of the breaking down of persisting mucous patches, situated on the tip or edge of the tongue and exposed to injury by the teeth. There is evidence of syphilis elsewhere in the body.

Cancer appears later in life and has more induration and less edema than tubercular ulcer. Cancer of the tongue usually starts as an apparently benign growth, which in time breaks down and becomes an ulcer, which slowly increases in size. There is marked induration about it and secondary enlargement of the submaxillary glands occurs.

LEUCOPLAKIA ORIS.

This is a term applied to the development of grayish-white, yellowish or brownish spots upon the tongue, uvula, arch of the palate, the tonsils or other portions of the buccal mucous membrane.

Etiology.—This is dependent upon the irritation of the buccal mucous membrane, due to excessive smoking, alcoholism, carious teeth, and gastric disorders. It has been ascribed to syphilis, and yet it has been known to occur in non-luetic subjects.

Pathology.—The plaques are raised above the surrounding surface. The microscope shows a hyperplasia with swelling and detachment of the epithelial cells, blood-vessel walls thickened and all the signs of a chronic inflammation.

Symptoms.—The condition may give rise to no symptoms, and in some cases the condition is discovered by accident, while in other cases the patient complains of a sensation of soreness, burning and pain in the mouth, with impaired taste. The affected area becomes thickened, stiff, hard and fissured. The patient may be hypochondriacal and fear he is suffering from an incurable disease of the stomach or from syphilis.

Prognosis.—This should be guarded, as epithelioma has been known to develop from leucoplakia.

Treatment.—This consists in removing the cause and relieving the underlying condition. The mouth should be kept clean and the proper care given to the teeth.

RIGA'S DISEASE.

This is an ulceration under the tongue, close to the frenum. At first it is about the size of a flaxseed, but it may gradually enlarge to the size of a penny. It is probably due to the rubbing of the inferior surface of the tongue on the sharp edges of the teeth. The child wastes in flesh because it cannot eat, and the skin becomes of an earthy hue. The liver and spleen become enlarged. The disease lasts from about the sixth to the twentieth month of life. If the patient survives that long, recovery usually takes place.

ACUTE EDEMA OF THE TONGUE.

This is a rapid and extensive swelling of the tongue, which may be associated with edema of the

aryteno-epiglottidean fold. It may be caused by taking alcohol, shell fish and other poisons. It migrates from part to part and may cause death from strangulation.

Treatment.—This should be prompt. The bowels should be cleaned out thoroughly by cathartics and enemas. The tongue or part involved should be scarified and adrenalin applied locally. The emergency calling for tracheotomy should not be forgotten. *Apis mellifica* should be given frequently.

BLACK TONGUE.

This is a rare affection which consists of a black discoloration, in the center of the tongue, which shades off to a brown at the edges. The patient is usually old and feeble.

The treatment calls for a good diet, hygienic treatment, and such remedies as may be indicated.

CANCER OF THE TONGUE.

This is most frequently observed in syphilitics who are smokers, in those with jagged teeth and in alcoholics. Local lesions and leucoplakia are frequently forerunners of epithelioma of the tongue.

Symptoms.—When it begins at the back of the mouth the glands in the submaxillary and posterior sublingual region become enlarged and sensitive, and there are darting pains through the parts. Deglutition becomes difficult. If this part of the tongue is palpable, a nodular hard swelling may be detected. Ptyalism with pus and blood appears as ulceration of

the part takes place, and fatal hemorrhages may result.

If the growth starts more anteriorly there is a small slit or crease with hypertrophied papillæ, which soon becomes ulcerated. This gradually develops into a typical epitheliomatous ulcer with ragged edges and a hard broad infiltrated base, and fungous out-growths bathed with fetid pus.

Diagnosis.—This is based upon the presence of a chronic ulcer of the tongue in a patient from forty-five years of age, in whom there is a history of a local irritation as a sharp tooth, a badly adjusted dental plate, or a constant pressure of some sort. The ulcer develops on the side of the tongue. It is surrounded by an infiltration which extends to the floor of the mouth, the gums, the tonsils and the pillars of the fauces. The tongue gradually loses its power of motion and of being protruded. The glands in the sub-maxillary region and at the angle of the jaw are the first to be involved.

The salivation is profuse, deglutition becomes difficult, and as the ulcer develops the fetor becomes more offensive and fatal hemorrhage due to erosion of the blood-vessels may result. The pain is constant, darting and cutting in character. The patient becomes exhausted, and usually dies within two years from its outset unless the disease is recognized and radical treatment instituted early. In doubtful cases, a microscopic examination of an excised portion of the growth should be made early.

CARCINOMATOUS ULCER.

1. Patient usually past middle age.
2. The tissue about the ulcer is deeply infiltrated.
3. After the removal of the cause of the irritation, the ulcer shows no tendency to heal.

SIMPLE ULCER.

1. Occurs at any age.
2. But little infiltration.
3. After removal of the cause the ulcer heals.

CARCINOMATOUS ULCER.

1. Appears usually in those from forty-five to fifty-five.
2. There may be other manifestations of cancer.
3. Appears on the sides or under the tip of the tongue.
4. The edges are everted and the whole surface covered with granulations.
5. Pain is burning, darting and cutting in character.
6. Submaxillary and sublingual glands are enlarged.
7. Does not respond to treatment.

SYPHILITIC ULCER.

1. Occurs at any age.
2. Usually other manifestations of syphilis.
3. Appears on the dorsum or on the side of the tongue.
4. Edges well defined, but not indurated.
5. Slight soreness.
6. Posterior cervical glands are enlarged.
7. Responds to treatment.

CARCINOMATOUS ULCER.

1. Appears in those past forty-five.
2. May be other manifestations of carcinoma.
3. Microscopical examination shows cancer.

TUBERCULOUS ULCER.

1. Appears at any age.
2. Usually other manifestations of tuberculosis.
3. Microscopical examination shows tubercles.

Prognosis.—Left to itself the average duration of life is from eighteen months to two years. Early surgical intervention may prolong life. Primarily it is a local disease, and success in dealing with it is by early operation.

Treatment.—Prophylaxis is important. The tongue should be guarded from irritation of all forms. The patient should be thoroughly nourished. The mouth should be kept clean by washes of *Borax*, 20 grains to the ounce, or one grain of *Permanganate of Potassium* to the ounce of water. Septic pneumonia is to be guarded against. If the septic condition is pronounced, the patient should sit with the head forward, that the discharge may not be swallowed. Complete surgical extirpation should be performed early and caustics avoided.

Kali cyanatum.—This remedy was employed by Dr. Petroz in a case believed to be inoperable cancer of the tongue. The symptoms present were the ulcer on the right side of the tongue, the indurated tissue around it, raised and knotty. The speech was difficult, indistinct and attended with great pain. The patient could take no food. One hundredth of a grain was given every fourth day. The patient showed gradual improvement. *Kali cyanatum* 2x was also applied locally. In two weeks cicatrization was complete. There are reports of other similar cases in which this remedy in the same strength was alternated with *Muriatic acid* 2x.

Trifolium pratense has been used in five to ten grain doses.

Thuja.—This is another remedy that should be studied, as well as *Carbolic acid* and *Conium* 6x, when the pains are sharp and excruciating.

Hoang-Nan is said to exert an influence in cases in which the patient is debilitated with great weakness

of the muscular system. It increases the vigor of the patient.

Hydrastis.—This remedy may be used both locally and internally in these cases.

Sepia.—This remedy has been of service. The pain in the later stages is excruciating, and it may be necessary to resort to opiates and anodynes when all hope of cure is past. Sarcoma of the tongue is rarely met with.

TONGUE-TIE—ANKYLOGLOSSIA.

In this condition the frenum linguæ is abnormally short and binds the tongue down behind the incisors so that nursing is interfered with.

Treatment.—This consists in nipping the frenum as far away from the tongue and ranine artery as is possible. Blunt scissors should be used. Fatal hemorrhages have resulted from injury to the ranine artery. Section of the frenum is useless to correct faults of pronunciation.

MACROGLOSSIA.

This is a congenital hypertrophy of the tongue occurring in idiocy and cretinism. In infants it increases in size rapidly. The enlargement is uniform and usually involves only the muscular tissue.

The symptoms consist of enlargement of the tongue so that it cannot be contained within the mouth. The respirations are usually impeded. The saliva dribbles from the mouth and the tip of the tongue becomes dry, hard and fissured.

Diagnosis.—This should not be mistaken for chronic parenchymatous glossitis.

Prognosis.—Surgical treatment renders the outlook more favorable.

Treatment.—If the tongue is much enlarged, liquid food must be taken through a tube. Surgical interference is indicated in pronounced cases. *Iodine*, *Kali mur.*, *Rhus tox.* and *Thyroid extract* may be of service.

RANULA.

This is a cyst that forms beneath the tongue upon one side of the frenum. It is due to an obstruction and dilatation of one of the mucous follicles. It is of a bluish color and contains clear mucus. The only annoyance from it is from its bulk.

The cyst should be thoroughly opened, and the sac cauterized with nitrate of silver.

APHTHOUS STOMATITIS.

Synonyms.—Vesicular stomatitis, canker.

Etiology.—This is seen occasionally in adults, but more frequently in anemic, rachitic, scrofulous children, when it may be dependent upon imperfect hygiene, carelessness in feeding, or some local irritation as sharp projections of the teeth, or the constant use of foreign bodies in the mouth. It occurs in certain women during menstruation, pregnancy and lactation.

Pathology.—The ulcerations appear as yellowish or whitish deposits upon the mucous membrane sur-

rounded by a red hyperemic zone. They are about the size of a pea, and while round, by coalescence may acquire an irregular form. Under the microscope the examination of the exudate or discharge discloses the presence of fibrin and mucus with small round cells and bacteria.

Symptoms.—The first noticed is the presence of a small papule which may be single or multiple and may occur at any point in the mouth, but is most common upon the lower lip, near the junction with the gum, or on the tip of the tongue. These soon lose their epithelial covering and appear as a small oval creamy white patch which after a few days becomes a well defined ulcer and usually heals in about a week. They are attended with a degree of pain and burning, and there may be present malaise, loss of appetite and various nervous phenomena.

Treatment.—In all acute diseases and under all conditions, the mouth should be kept clean. In repeated attacks the gastro-intestinal tract is usually at fault. In some cases the patients are neurotic, or anemic, others worry, do not take sufficient exercise, or there is some other cause which must be corrected.

The mouth should be thoroughly cleansed with a solution of Boric acid, five grains to the ounce of water, or Chlorate of Potash, two grains to the ounce, or a one per cent. solution of Permanganate of Potash. The food should be bland and nourishing and easily digestible.

Borax should be administered when the mouth is hot and sensitive, the ulcers bleed easily and there is thirst and vomiting.

Kali chloricum is indicated when there is extreme fetor. The saliva is tough and stringy. The mucous membranes are red and swollen, the ulcers are of a grayish color and the case is an obstinate one.

Hydrastis Canadensis should be remembered in repeated attacks, when the tongue is swollen, coated and yellow. The secretions are viscid and the bowels are constipated, and there are indications of auto-intoxication.

CATARRHAL STOMATITIS.

Synonym.—Acute stomatitis.

Definition.—This is an inflammation of the mucous membrane of the mouth.

Etiology.—Its origin may be mechanical, toxic, thermic or infectious, as the sharp edges of decayed teeth, the effects of corrosive alkalies, acids, stimulating foods, alcohol or tobacco, the irritation from fermentation of particles of food remaining in the mouth. In children it may result from the employment of such drugs as *Mercury*, *Lead*, *Bromine* and *Arsenic*. It may be dependent upon an infectious disease, as typhoid fever, measles, scarlet fever, small-pox and syphilis. It may be the result of gastro-intestinal disturbance, or result from the extension of the inflammatory process from surrounding organs.

Pathology.—The mucous membrane of the mouth is red and is usually covered with a liquid exudate. Small vesicular cysts may form from the distended mucous glands. Even erosions may result and as a result of secondary infection ulcers may appear.

Symptoms.—There is dryness of the mouth with pain, heat, and discomfort and difficulty in swallowing. There is usually a slight fever which is accompanied by vomiting and diarrhea. The child is fretful, irritable and the saliva dribbles from the mouth, excoriating the lips. If the condition is of any prolonged duration, the patient becomes anemic and feeble and may show emaciation.

Prognosis.—This is favorable when the exciting cause is removable. It should be differentiated from "foot and mouth disease."

Treatment.—The prophylactic treatment is the first thing to be considered. If the cause is still operative it should be corrected. Cleanliness and the careful feeding of children should be insisted upon. The mouth of the child should be cleansed by means of a fine linen cloth or pledgets of cotton and cool water after each meal. A three per cent. solution of Boric acid or a five per cent. solution of Sodium biborate locally is of service in many cases. If cysts form, they should be incised. In adults the same general treatment is indicated. A small piece of ice held in the mouth till it dissolves is beneficial. Should the process extend to the uvula or the pharynx, a mild antiseptic spray or Adrenalin or Tannin should be used. Should the edema become very pronounced, incisions into the parts may be required.

Chronic stomatitis is seldom seen among children, but when it is present, it is dependent upon some wasting disease. The treatment is that of acute stomatitis with the relief of the primary disease. In adults it is observed among drinkers and smokers.

Aconitum napellus.—This remedy should be studied in acute cases, when there is fever with dry skin and restlessness.

Belladonna should be remembered when the mucous membrane of the mouth is bright red and the face and head are congested. The carotids are throbbing and the pupils are dilated.

Arum triphyllum is of service when the mucous membrane is red and hot and there is much pain and sensitiveness.

Mercurius solubilis.—When this remedy is indicated the mucous membrane and gums are swollen, the glands are enlarged and there is profuse salivation.

Sulphur should be remembered in disturbances of the gastro-intestinal tract, with diarrhea when all the orifices of the body are red.

MEMBRANOUS OR CROUPOUS STOMATITIS.

This is usually but a severe type of aphthous stomatitis. It should be distinguished from diphtheric stomatitis.

The treatment does not differ from aphthous stomatitis.

GANGRENOUS STOMATITIS.

Synonyms.—Noma, Cancrum oris.

Definition.—This is a rapidly spreading, infective, gangrenous process which begins upon the gums and cheeks during childhood.

Etiology.—It occurs in children usually from two to five years of age, of lowered vitality, who live in

damp filthy quarters, and develops frequently while they are recovering from an acute infectious disease, as measles, scarlet fever, diphtheria, typhoid fever, or acute endocarditis.

Pathology.—The lesion appears as a small bleb on the mucous surface of one cheek which is speedily followed by ulceration. The surrounding tissue becomes indurated and gangrenous. The area involved is tense, usually of a dark red or black color, and, apart from involving the soft tissues, may extend to the upper or lower jaw and the malar bone, and even the orbit. The cheek may be perforated, the teeth may become loose and drop out. The blood-vessels, however, show great resistance in many of these cases. If the patient survives, a large cicatrix is formed, which may cause deformity of the cheek.

Symptoms.—The early symptoms may be obscured by those of the antecedent disease. But soon there is a foul odor from the mouth, the breath becomes fetid, and, together with the local manifestations already mentioned, there is extreme prostration with delirium, but no marked hemorrhages. The fever is moderate, the pulse is rapid, and slight enlargement of the lymphatic glands appears. The disease is usually confined to one side of the mouth. There is little or no pain.

Diagnosis.—This is based upon the clinical history of the case and the symptoms as outlined.

This condition is distinguished from anthrax by being more localized, and by the absence of the anthrax bacilli. From ulcerative stomatitis in that it

spreads more rapidly, penetrates the tissue deeper, and is more pernicious.

Prognosis.—Eighty per cent. of these patients die from the eighth to the eighteenth day. The prognosis is in proportion to the extent and severity of the disease. When recovery occurs there is usually deformity of the cheek, and eversion of the lower eyelid.

Complications.—These are meningitis, septic endocarditis, septic bronchopneumonia, pulmonary gangrene and enterocolitis and gangrene of the genitals, especially of the vulva.

Treatment.—But little can be accomplished in the way of prophylaxis, as the case is not usually seen till it has developed. If possible the strength should be increased and the nutrition improved. In a hospital, these cases should be isolated. When the case develops, the patient should be fed upon predigested or condensed food. The bowels should receive attention and all hygienic methods should be observed carefully. The fetor is beyond comparison, so ventilation should be good and constant disinfection employed. Platt's chloride is often of service by dipping strips of muslin in it and hanging them about the room. Arsenic 1 to 100 has been employed to paint the ulcer, or Silver nitrate two per cent., neutralized at once by normal salt; a solution of Carbolic acid 1 to 1000 has also been employed as a dressing. Solution of the Chlorate of Potash has also been used in this disease.

The diseased tissue may be removed either by the

means of caustics or the actual cautery. One cauterization is seldom sufficient, and a second or third may be demanded. If its removal is undertaken, it should be thorough. Following the removal of the gangrenous tissue, a mild antiseptic dressing should be applied to the granulating surface. No plastic operations should be undertaken for at least one year following the attack in order that the vitality of the patient may be improved, for, if operated upon too soon, the process may return.

Kali chloricum 3x is indicated when the mucous membrane of the mouth is red and tumefies and there are gray-based ulcers of the cheeks and lips. The mucous membrane of the mouth and throat presents a tanned appearance.

Mercurius dulcis is indicated in cases of gangrene of the lips, cheeks and face, and should be remembered in the onset of these cases when there is ulceration of the mucous membrane of the mouth, with grayish base, red edges, and edema of the cheeks, with salivation and fetid odor.

Mercurius corrosivus is indicated when the ulcers are characterized by their phagedenic character and intense burning.

Mercurius cyanatus should also be studied when there are large gray ulcers of leathery appearance in the mouth, with fetid breath, etc.

Arsenicum album should be remembered when there is marked prostration with a constant thirst, fetid bloody salivation, and the diseased parts present a pale purplish appearance.

Lachesis may be indicated when the face is swollen, edematous, and the parts are of a purple-black appearance. The patient is greatly prostrated, worse after rest.

Echinacea angustifolia is recommended in septic cases when there is great languor, chills and chilliness, flushed face and accelerated pulse, together with the local symptoms.

MERCURIAL STOMATITIS.

Definition.—This is an inflammation of the salivary glands and buccal mucous membrane, the result of the administration of Mercury.

Etiology.—Any preparation of Mercury may produce it. Certain individuals are especially susceptible to small doses of Calomel, so that the size of the dose is no criterion by which to judge its effects.

Symptoms.—The first symptoms are swelling of the gums, accompanied by tenderness and some pain, especially upon mastication. The breath is offensive, the saliva increases in amount and may be excessive. The teeth become loose, the gums ulcerate and necrosis of the jaws may follow. The inflammation may extend to the pharynx and Eustachian tube, involving the middle ear. The patient complains of a metallic taste in the mouth, and abdominal pains. Diarrhea may exist, accompanied by excoriation of the rectal mucous membrane and discharge of blood.

Prognosis.—While this disease may be very distressing and may result in the loss of the teeth and necrosis of the jaw, it seldom terminates so seriously.

Treatment.—The Mercury should be stopped. The

mouth should be washed with a lotion of the Bicarbonate of Soda, or a solution of Carbolic acid (1-60). Chlorate of Potash may be of service, 10 grains to the ounce. Kali iodide in one-half to one per cent. solution as a mouth wash is frequently used.

When a physician puts a patient under the influence of Mercury, he should instruct him to keep the mouth and teeth clean. After each meal and before retiring, the teeth should be well cleansed by the aid of a stiff tooth brush and cold water. A mild antiseptic mouth wash may be used, the mouth should be rinsed after each washing. Irritating stumps of teeth should be removed, carious teeth filled, and sharp teeth filed off smooth. Whenever the red band is seen on the gums the Mercury should be stopped. When ptyalism begins, the mouth should receive careful treatment. The patient should drink large quantities of water, take hot baths and keep the bowels open by salines that elimination may be favored. If the patient is already weak, the hot baths should be avoided. The patient's strength should be maintained by plenty of nutritious liquid food.

The remedies that exercise the most influence in these cases are *Hepar sulphur.*, *Iodine*, both locally and internally, and *Nitric acid*. The last remedy upon careful study will be found to meet the indications in many of the cases. The section on ptyalism should also be consulted.

PARASITIC STOMATITIS.

Synonym.—Thrush.

Definition.—This is a catarrhal stomatitis, which

is associated with a fungous growth which consists of various sized patches.

Etiology.—A catarrhal stomatitis with uncleanness and constitutional debility are the predisposing causes. It occurs most frequently among new born children and the very aged. It may occur at any age in those who are debilitated, as from tuberculosis or cancer. There is a restricted movement of the tongue in all these cases. Dirty feeding bottles, spoons and other utensils used in feeding are a common source of the infection.

Pathology.—The fungous growth that is present is the *oidium albicans*. There is also redness of the mucous membranes and diminution of the buccal secretions. The small white spots soon appear upon the surface and require some effort to detach them.

Symptoms.—The symptoms are slight. There is a sense of burning and pain in the mouth. There is present the catarrh stomatitis and the fungus which is apparent upon inspection. Diarrhea and vomiting may be present.

Diagnosis.—If there is any doubt of the diagnosis, apart from the symptoms, the microscope will reveal the condition.

Prognosis.—This is favorable, but in feeble patients it may be prolonged and may even persist to the end in some cachectic individuals, but is not the cause of death. In new born children thrush is attended with diarrhea, which may endanger life.

Treatment.—This consists of cleanliness. In cases of artificial feeding, the milk and bottle should be

sterilized. If the child is nursed by the mother the nipples should be thoroughly cleansed.

If the disease already exists, the mouth should be cleansed by a soft cloth soaked in a Boric acid solution, Permanganate of Potash, or a weak alkaline solution, also touching these areas daily with Silver nitrate one per cent. solution. The washes should be repeated every two or three hours. The mouths of young children should be cleansed with soft linen cloth after nursing.

Borax is frequently indicated when the mouth is sore, and the child cries continuously. The stools are of a light yellow, slimy character.

Sulphuric acid should be studied in the case of weak, delicate children. The saliva is profuse and tasteless. There is diarrhea with great debility and an inclination to sweat.

Muriatic acid should also be studied in these cases.

Hydrastis, *Silver nitrate*, *Ars. iod.*, *Merc. cor.*, *Merc. biniodide* and *Merc. cyan.* may be indicated.

ULCERATIVE STOMATITIS.

Synonyms.—Putrid sore mouth, fetid stomatitis.

Etiology.—This is most common among children during their first dentition. It may be epidemic among adults in asylums, jails and camps, where the hygienic condition is bad. It may be dependent upon a local irritation, as decayed or carious teeth, or upon improper feeding.

Pathology.—There is a localized necrosis of the buccal mucous membrane, with a round cell infiltra-

tion of the surrounding tissue. The ulceration spreads superficially.

Symptoms.—It usually appears at the margin of the gum in the region of a molar tooth. The gums are red, swollen, spongy, bleed easily, and soon ulcerate. The ulcer is of a gray color, is soft, and has sloughing base. While the mucous membrane of the lips, cheeks and tongue is swollen, it seldom ulcerates; but there is salivation and a peculiar foul breath. The submaxillary glands are usually enlarged, while the teeth may become loosened and the alveolar process become necrosed. The tongue is thickly coated and a general septic condition supervenes with nausea, vomiting and an offensive diarrhea due to acute intestinal infection.

Diagnosis.—This is based upon the symptoms as outlined. It should be differentiated from aphthous and gangrenous stomatitis and syphilitic ulcers of the mouth.

ULCERATIVE STOMATITIS.

1. The ulcers are located at the margin of the gums but not on the palate.
2. The ulcer bleeds easily and has a dirty grayish-yellow base.
3. The ulcer is superficial.
4. No history of syphilis.

SYPHILITIC ULCERS OF THE MOUTH.

1. Are located on the palate, in the pharynx and tonsils and at the corners of the mouth.
2. They seldom bleed and have less of the gangrenous character.
3. The ulcer is deeper and may perforate.
4. History of syphilis.

Prognosis.—Recovery usually occurs within a week except in those cases in which there is alveolar necro-

sis, extensive ulceration, and in weakly marasmic children. Cases that have been neglected become chronic and persist for months.

Treatment.—Those general conditions that tend to produce a lowering of the vitality, as well as those local conditions that favor ulceration, should be corrected. To control the suppuration Hydrogen peroxide (three per cent. solution) is of service in the form of a spray, or by direct applications. A one to one thousand solution of Permanganate of Potassium may be used to wash the mouth. A one to one hundred solution of Sodium salicylate is also of service, or Potassium chlorate two grains to the ounce of water, or Echinacea one part to four of water, also nonalcoholic hydrastis one to twenty.

If, after a few days of constitutional treatment, the ulceration does not yield, it is probable that there is a carious tooth that is the exciting cause. The tooth should be either filled or removed, or if there is necrosis of the bone, the sequestrum should be removed.

Baptisia.—This remedy should be remembered in those cases in which there is a general constitutional involvement. The fetor of the breath is intolerable. The mucous membranes are dark and purple. The gums are soft and spongy. The teeth are loosened and the stools are watery and foul.

Echinacea should also be studied in this type of case.

Mercurius sol. bears a close resemblance to many of these cases, but the constitutional symptoms are not as pronounced. There is great fetor from the

mouth, the tongue is swollen and shows the imprint of the teeth, which are loose. There is an offensive breath and profuse salivation. The mucous membrane of the gums and mouth has deep ulcerations with a grayish and lardaceous base, which bleed easily. In some of these cases where the ulcers show a phagedenic tendency *Mercurius corrosivus* is most useful.

Muriatic acid should be remembered in cases in which the ulcers are deep and show a tendency to become gangrenous.

Nitric acid should be studied when the gums are unhealthy, bleed easily and there is a foul odor from the mouth. The patient complains of pricking, splinter-like pains.

Kali chloratum should be remembered in those cases with a white coated tongue and tough, stringy saliva.

STOMATITIS MATERNA.

Synonym.—Nursing sore mouth.

Definition.—This is a form of stomatitis observed in women during utero-gestation or lactation.

Etiology.—It is supposed to be of scorbutic origin, as there is present in all these cases a derangement of the nutrition, and much the same line of treatment as in scurvy is efficacious.

Symptoms.—These are general and local. The first thing noticed is a scalding sensation in the mouth, aggravated by taking food. Upon inspection the mouth presents a fiery red appearance, which may be localized or diffused. There may be ulcerated spots from the size of a pea to that of a dollar. There

is pallor of the skin, and the muscles are soft and flabby. The patient complains of pyrosis and anorexia. There is a profuse flow of saliva, and the tongue is red and smooth. There is usually colicky abdominal pain with alternate constipation and diarrhea. The urine is concentrated and dark. The patient gradually becomes emaciated.

Diagnosis.—This is based upon the sex, its appearance during either pregnancy or lactation, together with the local and constitutional symptoms.

Prognosis.—This is favorable in a young and otherwise healthy woman, but in those suffering from some cachexia, as tuberculosis, it is unfavorable.

Treatment.—In some cases the disease is cured by simply regulating the diet. In many cases the patient cannot take solid foods. If she can take them, broiled meats, rare beef, or mutton, together with baked potatoes, carrots, baked apples with fresh fruits and vegetables; also milk, butter-milk, eggs poached or boiled, and plain custards, meat jellies, and lemonade and orange juice are of service.

Many of these patients are relieved by the use of acidulated drinks. In some cases the induction of premature labor, weaning the child and a change of climate must be considered. The mouth should be kept as clean as possible by rinsing with pure cold water, or a solution of Hydrastis, Calendula, Borax, Baptisia or Chlorate of Potash.

Of the remedies indicated in these cases the acids produce many of the symptoms, and should be carefully studied.

Acidum nitricum is indicated in lean, chilly subjects who suffer from great debility. There are spreading ulcers in the mouth which give a fetid odor. The patient complains of sharp sticking pains in the mouth. There is more or less salivation with putrid breath. There is apt to be a watery diarrhea while the urine has a strong odor.

Acid sulphuricum is indicated in patients who are exhausted and complain of a sensation of tremor over the body, without real trembling. The mouth is sore and ulcerated and there is a sensation of coldness in the stomach. These symptoms are frequently attended with a copious diarrhea.

Arsenicum album should be remembered in cases characterized by burning in the mouth, with frequent desire for water. The patient is prostrated, weak and restless.

Mercurius should be studied if there is destructive ulceration. The breath is offensive. The secretion of saliva is increased.

Other remedies that have proven beneficial are *Borax*, *Calcarea carb.*, *Ammonium carb.*, *Baryta carb.*, *Natrum muriaticum* and *Veronica*.

SYPHILITIC STOMATITIS.

This is an expression of constitutional syphilis. The ulcers appear at the corners of the mouth and in the throat. They are deep but do not bleed easily. The treatment is that of constitutional syphilis, together with touching the mucous patches daily, or very other day, with a solution of Silver Nitrate 2 to

50 per cent. followed by a gargle of normal salt solution. A gargle of Ferric Chloride one-half to one per cent. solution in Glycerine is of great value.

PARROT'S DISEASE.

This is the term applied to an ulceration that appears upon both sides of the middle line of the hard palate in the new born. It penetrates the tissue and even causes necrosis. It is difficult to manage and requires the usual treatment for ulcerative stomatitis.

BEDNAR'S APHTHÆ.

This disease is characterized by aphthæ, or white patches over hard palate near the gums in infants.

It is usually dependent upon traumatism due to the rough cleansing of the parts or to an artificial nipple. The nipple should be changed and the treatment mentioned under ulcerative stomatitis introduced.

FOOT AND MOUTH DISEASE.

This is observed in cattle and is occasionally observed in human subjects. There is fever, gastro-intestinal and bronchial irritation. Vesicular irritation appears upon the lips, mouth and pharynx. There is a tendency to hemorrhage and ulcerative pharyngitis.

The treatment is similar to that of ulcerative stomatitis.

PTYALISM.

Synonym.—Salivation.

Definition.—This is an excessive secretion of saliva.

Etiology.—It is observed in cases of stomatitis, especially the mercurial form, as a symptom of rabies or as a result of reflex irritation of the salivary nerves. In irritation of the salivary centers of the cerebrum or of the medulla oblongata, as is observed in central hemorrhages, softening, or in new growths. It is also noticed in the insane and in the hysterical. It occurs in diseases of the mouth, teeth, stomach, bowels, liver, kidneys and pancreas. It also results from the administration of *Pilocarpine*, *Iodine*, *Copper* and *Mercury*.

Symptoms.—The great symptom is the increased secretion of saliva, the mouth is kept open and the saliva escapes continually; the skin of the chin may be irritated by the discharge. The saliva is turbid and contains epithelial cells. The patient suffers from the distress of frequent swallowing, and in consequence even the sleep is disturbed. A sensation of drawing, increased warmth or tension in the region of the gland may be complained of. The urine is diminished in quantity as a result of the excessive production of saliva.

Prognosis.—While ptyalism is not dangerous to life, its curability depends on the cause. Its duration is variable. It may last from a few hours to weeks. Progressive emaciation results and gastric digestion is interfered with in prolonged cases.

Treatment.—In all cases the cause should be sought out and removed if possible. The diet should be bland, nutritious and easily digested. Weak, slightly astringent mouth washes to cleanse the

mouth are indicated. Dilute alcohol as a gargle is also beneficial. A solution of ten drops of Iodine, or a grain of Permanganate of Potash to a glass of water, makes an excellent mouth wash, as does a solution of Peroxide of Hydrogen and Listerine.

The galvanic current is of service. The positive pole should be applied over the mouth while it is full of water and the negative pole over the thyroid cartilage. It should be used daily.

Mercurius sol.—This remedy should be remembered in this type of cases in which the mouth and gums are sore. The secretion from the mouth is slimy and stringy, and there is great fetor of the breath. The salivary glands are enlarged and the tongue shows the imprint of the teeth.

Hepar sulphur. should be studied carefully in all cases dependent upon the abuse of *Mercury*. There are suppurating ulcers of the mouth, the discharges contain much blood and smell like old cheese. The symptoms are aggravated at night, from cold winds, cold air, uncovering, eating cold food, from motion and the slightest touch.

Iodine.—This is an important remedy in ptyalism due to *Mercury*, and when indicated may be employed both locally and internally. There is general emaciation and a sense of profound weakness. There is a constant taste of salt in the mouth, with ulceration and soreness.

Acidum nitricum is of service also in mercurial ptyalism. The saliva has a sweetish taste and is tenacious, but not copious. The odor from the mouth

is offensive and the mucous membrane is affected. *Acidum sulphuricum* should be compared with this remedy.

Belladonna and *Atropine* are often used in cases of mercurial ptyalism.

Pilocarpinum and *Jaborandi* should be remembered in these cases when of mental or nervous origin. The salivation appears suddenly, reaches its maximum in fifteen minutes, may continue two hours, during which time a pint or more saliva is secreted.

Helonias is indicated in the salivation of pregnant women. The patient complains of a tired, exhausted feeling.

Iris versicolor is useful when the mouth feels raw and scalded. The patient is subject to sick headache.

Cuprum sulphuricum has been of service.

THE PHARYNX.

This is the cavity which is situated posterior to the nose, mouth and larynx. It is divided i to three portions, the naso-pharynx, the oro-pharynx and the laryngo-pharynx. Its functions are connected with those of respiration, deglutition and phonation.

Clinical examination. The pharynx and soft palate are best seen when the tongue is depressed.

Care must be taken not to apply the depressor too far back, for if the posterior portion of the base of the tongue or the pharynx is touched gagging results that renders the examination difficult. The posterior wall of the pharynx can be seen better when the patient says "Ah" and so elevates the uvula.

Palpation of the naso-pharynx or of the laryngo-pharynx to examine for foreign bodies, retro-pharyngeal abscesses, or adenoids must be done very quickly, because it is disagreeable to the patient and can be borne but for a short time. Unruly patients and children are liable to bite the examiner's finger unless the cheek is pressed in between the patient's teeth with the free hand. This is a better method than to employ appliances for protecting the fingers. The forefinger is better adapted for palpating adults, and the little finger for small children. The introduced finger is hooked upward or downward, according to the region to be explored. The entire pharyngeal cavity can be palpated from the larynx below to the posterior nares above.

ACUTE PHARYNGITIS.

Synonyms.—Sore Throat, Angina.

Definition.—This is an acute inflammation of the mucous membrane of the pharynx. It may be associated with an acute inflammation of the tonsils, nares and of the soft palate.

Etiology.—It is dependent upon exposure to cold, and the inhaling of infected dust. At times disease of the stomach, defective elimination, smoking, the use of alcohol and highly seasoned food may be predisposing causes. It may be rheumatic, gouty, scrofulous or syphilitic in origin, or may be dependent upon nasal obstruction. It frequently accompanies the acute infectious diseases.

Symptoms.—The mucous membrane is a dark red color, is swollen and is covered with a layer of mucus containing pus cells. If the congestion is extremely acute the mucus may contain blood. There is a frequent desire to swallow, deglutition is painful, frequently there is a tickling in the throat which may cause a dry cough, and the hacking which may give rise to vomiting. In some cases the constitutional symptoms are pronounced. There is a slight fever which usually does not last long. The duration of the attack is from two to six days.

Diagnosis.—This is based upon the clinical history of the case and the appearance of the mucous surfaces.

Prognosis.—These cases recover, but the condition may become chronic and in some cases there is edema and at times ulceration of the mucous membrane.

Treatment.—At the beginning of the attack the bowels should be thoroughly evacuated. If there is much fever the patient should remain in bed and be given a sponge bath with warm water, followed by thorough friction. If the throat is very sore it will be relieved by a cold compress applied to the neck and then well protected by several thicknesses of dry flannel cloth. If there is much mucus in the throat it can be removed, and the congestion of the mucous membrane relieved by the use of a warm solution of Bicarbonate of Soda, ten grains to an ounce of water. This may be applied by means of a soft rubber ear syringe, which will throw about one-half ounce at a time. The naso-pharynx should also be cleansed by passing the solution through the nose. Following the thorough cleansing, medicaments dissolved in albolene and sprayed in the nose protect the mucous surfaces from the dust.

Aconitum napellus should be studied when there has been an exposure to cold. There is fever with arterial excitement and the throat is dry, and there is a sensation of prickling and burning referred to it.

Belladonna—When this remedy is indicated there is redness of the pharynx, soft palate, uvula and tonsils. The patient complains of a sensation of dryness, burning, constriction and difficult breathing. The face is flushed and hot.

Gelsemium—This remedy should be studied in those cases in which the fauces are dry, irritated and burning. The tonsils are inflamed and there is a sensation of burning in the esophagus. The patient is

drowsy, the face is flushed, the pulse is small, and the arterial tension is low.

Mercurius iodatus flavus is indicated when the throat is sore and swallowing is painful. There is a constant secretion of saliva, which is difficult to dislodge, and as a result causes retching. The mucus descends from the back of the nose to the throat. The tongue is broad and flabby and has a yellow coating, especially upon the back.

Capsicum is indicated when the throat presents a dark red hue. The breath is fetid, the uvula is elongated, and there is a burning sensation in the pharynx, and a dry burning sensation between the acts of deglutition.

Apis mellifica.—This remedy is indicated when there is edema of the mucous surfaces, with painful and difficult swallowing attended with stinging pains.

Nux vomica is indicated when there is a sensation in the throat as if it were rough, raw, sore or scraped. There is a constant dry hacking cough that is attended with headache and pain in the hypochondrium which is worse while coughing. There is soreness in the stomach and hypochondrium. The patient is cross, irritable and is worse during the morning.

Rhus toxicodendron.—This remedy is indicated when there is a sensation of great debility, and a roughness of the pharynx. The fauces are edematous, the uvula is elongated, puffed, translucent and has the appearance of jelly.

Phytolacca.—This remedy is indicated when there is enlargement and soreness of the glands about the

angle of the jaw. The mucous membranes are dark red and swollen. There is difficulty in swallowing. There is aching and pain in the limbs.

ULCERATION OF THE PHARYNX.

Tuberculous ulceration of the pharynx is usually secondary to pulmonary tuberculosis. The ulcer is irregular in outline and has a grayish yellow base. It gives rise to severe pain, and there are the usual constitutional symptoms of tuberculosis.

The treatment should be constitutional, together with such local measures as will afford the patient comfort. In many cases the curettement of the ulcer, followed by the careful applications of Lactic acid, is beneficial.

Follicular ulcers of the pharynx are small, superficial and accompany chronic pharyngitis. These ulcers seldom require treatment apart from that of the accompanying pharyngitis.

Ulcerous pharyngitis is observed in debilitated, cachectic individuals who have been exposed to septic influences. The ulcer varies in size and may be multiple and of a yellow-white color. The constitutional symptoms are pronounced.

In the management of these cases the general condition of the patient should be improved by means of baths, diet, etc. The ulcer should be cleansed by a spray of Peroxide of Hydrogen. Following this there should be an application of Calendula oil, or other soothing application of such remedies as will meet the condition.

Syphilitic ulcers begin as erythema, papules, but speedily form mucous patches. These lesions have a tendency to recur, and in some cases may show a most destructive ulceration.

In the treatment of these cases, the mouth and teeth should be carefully cleansed, and all irritating foods avoided.

TUBERCULOUS PHARYNGITIS.

1. There is intense pain upon swallowing.
2. There is a gelatinous deposit and infiltration and there is no pus in the ulcer.
3. There is a history of tubercular infection.
4. Frequently a family history of tuberculosis.
5. There are febrile symptoms characteristic of tuberculosis.
6. Tubercle bacilli may be found in the sputum.
7. There are usually evidences of pulmonary tuberculosis.

TUBERCULOUS PHARYNGITIS.

1. The infiltration has the appearance of fish-eggs.
2. There is no pus in the ulcer.
3. The temperature curve is characteristic of tuberculosis.
4. There are no rose spots or Widal's reaction.
5. Tubercle bacilli are present.

SYPHILITIC PHARYNGITIS.

1. The pain upon swallowing is not severe.
2. It presents none of these characteristics.
3. There is a history of syphilitic infection.
4. A history of syphilitic infection. Tuberculosis may be associated.
5. There may be no febrile symptoms.
6. Are not present.
7. Usually other evidences of syphilis

TYPHOID FEVER.

1. The ulcers present an unhealthy appearance.
2. There is usually more or less pus.
3. It is characteristic of typhoid fever.
4. Present in the majority of the cases.
5. They are not present.

MYCOSIS PHARYNGIS LEPTOTHRICA.

In this disease there are in the lacunæ of the tonsils yellow spots which are often apparently confined; under the microscope they are found to consist principally of leptothrix bacteria. It may give rise to the sensation as of a foreign body in the part, and cause retching and vomiting. These bodies may extend to the dorsum of the tongue, the mucous membrane of the larynx and even to the trachea.

While the disease is harmless, it is often difficult to cure. It may disappear spontaneously. Its removal by mechanical means and the destruction by galvano-cautery has been successful. When the galvano-cautery is not convenient, application of Chromic acid or Nitrate of Silver may be applied in the crypts following their curettement.

NEUROSES OF THE PHARYNX.

Anesthesia of the pharynx may appear as a symptom of hysteria, or accompany bulbar paralysis. It may be the only evidence of diphtheric paralysis. There is also difficult deglutition, and the food may pass into the larynx. As in all neuroses, the general health must be taken into consideration, and improved. Galvanism and faradism are of service. In some cases it may be necessary to feed the patient with a stomach tube. *Gelsemium*, *Strychnina phos.*, *Rhus toxicodendron* and *Iodoform* are a few of the remedies that have been of service.

Hyperesthesia of the pharynx is frequently met

with in people who are otherwise normal. It may be purely mental, or it may accompany a nervous, hysterical state, a catarrhal condition of the pharynx, or varicose veins at the base of the tongue.

The treatment of these cases is medical. *Coccus cacti*, *Ignatia*, *Hyoscyamus* and *Nux vomica* are some of the remedies frequently indicated.

Paresthesia of the pharynx is observed in nervous hysterical subjects who, following the removal of a foreign body from the pharynx, will not believe it has been removed. This condition reveals itself as a globus hystericus, or as a ball, stick, bone or hair. In these cases the general condition must be improved. Mental suggestion is of service and a remedy as *Ignatia*, *Hyoscyamus*, *Cuprum* and *Valerian* may be of service.

Neuralgia of the pharynx occurs in neurotic subjects, in whom a sensitive point may be detected on the walls of the pharynx.

The indications are to improve the general health, using galvanism and the indicated remedy.

RHEUMATIC PHARYNGITIS.

This and gouty pharyngitis is frequently observed, following exposure to cold, or it may alternate with rheumatism of some other part of the body.

The symptoms are not definite. There is more or less pain in the throat which may not be attended with any redness or inflammatory process, but the pain is greatly aggravated during deglutition. The pain may come and go quickly.

Colchicum, *Guaiacum*, *Rhus toxicodendron* and *Phytolacca* should be studied.

LUDWIG'S ANGINA.

Synonym.—Cellulitis of the neck, probably due to the streptococcus.

Definition.—This is a pyogenic inflammatory process that begins about the submaxillary gland and extends to the structures forming the floor of the mouth, and often rapidly becomes fatal.

Etiology.—It may be the result of traumatism or be secondary to an acute infectious fever, as scarlet fever or diphtheria.

Symptoms.—There is pain and swelling of the floor of the mouth and neck. Edema of the glottis may develop. The symptoms are those of infection, and abscess may form pointing internally or externally. In rare cases spontaneous resolution takes place.

Treatment.—This consists in the early application of cold, the early evacuation of the pus and the administration of such remedies as are indicated.

CHRONIC PHARYNGITIS.

Etiology.—This may be the sequela of the acute form, or it may be chronic from the beginning, and develop slowly. Exposure to dampness, cold drafts, the inhalation of irritating dust and vapors, and the excessive use of the voice are causative factors. It occurs in patients with a gouty or rheumatic tendency and those in whom renal and alimentary elimination is imperfect.

Pathology.—A prolongation of catarrh leads to fibrosis of the mucous membrane and to dilatation of the small venules. As the epithelium is destroyed the secretion of mucus is diminished and pharyngitis sicca or atrophica is developed.

Symptoms.—There is a dull pain in the throat upon speaking, or swallowing, and there may be hoarseness, a dry cough and tickling in the throat. The lymphoid bodies of the pharynx are enlarged, raised above the surrounding surface and may coalesce. The small venules are dilated, and may rupture and thus cause streaks of blood in the expectorated material.

A moderate degree of pharyngitis may give rise to no symptoms apart from the recurrent attacks. In other cases there is great distress in speaking, singing and to a degree when swallowing, which is always aggravated by a nervous condition that ensues. In some cases there is a neurosis established which is out of proportion to the organic disease, and mucus may accumulate in the naso-pharynx and lead to distress, hacking and vomiting. This may extend downward, resulting in hoarseness and aphonia.

Prognosis.—Many of these cases, while stubborn, are curable. In the later stages the glands are destroyed and pharyngitis sicca results.

Treatment.—Many of these cases commence early in life, and especially in children in whom there is a tendency to lymphatic and hypertrophic disturbance of the naso-pharyngeal and faucial tonsils. These conditions in children should be treated early in life,

as in this method permanent change in the mucous membrane, and especially of the Eustachian tube, is avoided. Chronic nasal catarrh in syphilitics and so-called scrofulous subjects should receive prompt attention.

In some cases a careful examination of the urine shows the solids to be low, and indicates that they are being eliminated through the mucous membrane. If such is the case, hygienic measures should be adopted and a remedy selected which will overcome this condition. These patients should spend as much time as is possible in the open air, and should avoid wraps about the throat. The throat and upper part of the chest should be bathed daily with water that at first is tepid, till later it is cold. Following the bath, there should be a thorough friction with a Turkish towel. The feet should be kept warm and dry. The sleeping room should be well ventilated.

In some cases there is an intestinal intoxication which must be overcome before the condition is improved. In other cases gout, anemia, syphilis or tuberculosis is present and must be treated. If tobacco and alcohol are used to excess they should be stopped. Astringent gargles are of but little service, but Sodium bicarbonate, Boric acid, Listerine and Hydrastis solutions are of service. The inhalation of mechanical and chemical irritants should be avoided.

Wyethia.—This remedy is indicated when there is a dryness of the throat with constant desire to swallow. The pharynx presents a dark red appearance and the patient complains that it is sensitive, feels

swollen, dry and there is a sensation of burning with a constant desire to clear the throat.

Sanguinaria nitrate should be remembered in follicular pharyngitis when there is a sensation of burning, soreness, and rawness in the whole of the pharynx. The discharge is thick, yellow and may contain traces of the blood.

Sanguinaria Canadensis.—When this remedy is indicated the pharynx presents a red, congested appearance, and ulceration may be present. The patient complains of a sensation of burning and dryness of the pharynx which is not relieved by drinking water. There is a frontal headache, heat in the head, great dryness of the throat and paroxysms of coughing which are painful and without expectoration.

Hydrastis is indicated in hypertrophic catarrh, when there is swelling, redness and soreness of the pharynx. There is dropping of mucus from the nasopharynx. The mucus is of a yellowish color and stringy.

Kali bichromicum should be studied when the fauces are red, painful and swollen; there may be ulceration. The discharge consists of tenacious mucus which hangs from the posterior nares. There are stitching pains that extend to the ears and violent supraorbital headache.

Alumina —This remedy should be studied when the mucous membranes are dry, glazed and red. The voice is hoarse, husky and weak, especially during the morning. There is a sensation of rawness and soreness of the throat and as if a splinter were stick-

ing in the pharynx. There may be a small amount of mucus, but it is tenacious. The symptoms of the throat are ameliorated by warm food and drinks.

Æsculus hippocastanum.—When this remedy is indicated, there is great dryness, burning and scraping in the throat and posterior nares, with a sensation of excoriation and pricking. There is hawking and the dropping of clear mucus into the throat. There is a tendency to constipation and hemorrhoids.

Mercurius biniodatus.—When this remedy is indicated, the breath is fetid, there is a degree of ptyalism and the naso-pharynx is covered with a tough white or greenish mucus or greenish lumps. The throat feels sore and there is frequently a sensation as though it were scalded. The parts are of a dark red color, the tonsils are indurated, the uvula is elongated and the cervical glands are enlarged.

Iodium should be studied in scrofulous subjects who complain of sensations of burning and scraping in the pharynx. The patient complains of a gradually increasing emaciation in spite of a good appetite.

Arsenic iodide is useful in cases of chronic follicular pharyngitis of tuberculous subjects, when the discharges are thin and excoriating and the saliva is acrid. The pharynx is sore and there is a constant scraping and hacking.

Nux vomica should be remembered in men who are addicted to the use of alcohol and tobacco. They are subject to gastric derangements and constipation with ineffectual urging to stool. The pharynx presents an

alternation of atrophic white patches and enlarged follicles. The pharynx is exceedingly sensitive and there is gagging and retching whenever the tongue depressor is passed beyond the lips.

Calcareo phosphorica should be studied in young subjects who have grown rapidly and have glandular and tonsillar enlargement. The pharynx is studded with enlarged follicles and the whole pharyngeal tissue presents a condition of hyperplasia. *Calcareo carb.*, *Calcareo iodide*, *Baryta carb.*, *Baryta iodide*, and *Sulph.* should be carefully compared.

Kali iodatum is of service in cases with hoarseness, burning, scraping and roughness of the pharynx, pain in the chest, cough and oppression in breathing. The expectoration is greenish, stringy and salty.

Kali muriaticum is indicated in cases in which there are adenoid vegetations and enlarged follicles. The mucous membrane between the follicles is pale. There is a mucous discharge which is white and transparent. There is Eustachian catarrh and deafness results. If the remedy is continued over a prolonged period it will be found to lessen susceptibility to acute attacks.

Mercury protoiodide has many points of similarity to the last remedy, but there is a greater glandular involvement and the base of the tongue has a thick, dirty yellow coating.

Argentum metallicum.—When this remedy is indicated the case is a chronic one. There is a constant hoarseness, and as soon as the patient begins to talk or sing there is an easy expectoration of mucus that looks like starch paste.

Argentum nitricum is indicated in chronic follicular pharyngitis when the parts present a dark red appearance, the patient hawks thick tenacious mucus from the throat, and there is burning in the throat with a sensation of a splinter being lodged there.

GANGRENOUS PHARYNGITIS.

This is a possible sequela of typhoid fever, diphtheria, scarlatina, measles, trauma and septic embolism.

There is a severe sore throat with high fever, with greenish or even black spots at various parts of the pharynx, which becomes the seat of ulceration. The breath is fetid. Before the disease has advanced far great prostration results, the temperature becomes subnormal, the pulse becomes feeble, the surface of the body cold, diarrhea appears and death soon follows.

The treatment consists in the management of the primary disease, together with the septic condition. One per cent. solution of Carbolic acid, used as a gargle, followed by Peroxide of Hydrogen. Orthoform dusted on the parts will act as a germicide and local anesthetic.

RETROPHARYNGEAL ABSCESS.

This is most frequent in children. It may be the sequela of scarlet fever, diphtheria and at times lead to caries of the cervical vertebræ.

Symptoms.—The patient is restless, and swallowing becomes painful and difficult. On inspection a

mass is noticed projecting from the posterior wall of the pharynx which may fluctuate.

Treatment.—During the early stage, inhalation of a soothing hot vapor will be of service, warm applications to the outside of the neck may assist. As soon as possible an incision should be made, and drainage established. This can usually be from within the throat, and especially if the abscess is due to a suppuration of a retropharyngeal gland. The pus may be evacuated by a trocar. A route from the outside is chosen when the abscess points externally and when it is of the cervical vertebræ and is large. In these cases the incision should be made posterior to the sterno-cleido mastoid muscle. Following the evacuation of the pus, *Silicea*, *Hepar sulph*, *Pulsatilla* or *Kali mur.* should be given.

THE ESOPHAGUS.

This is a muscular tube about 10 inches in length. It begins as a continuation of the pharynx, posterior to the cricoid cartilage and anterior to the sixth cervical vertebra. It enters the upper opening of the chest slightly to the left of the median line, and descends to the esophageal opening in the diaphragm, and opens into the cardia of the stomach at the level of the tenth or eleventh dorsal vertebra.

Three circular constrictions can usually be distinguished, one posterior to the cricoid cartilage, a second behind the trachea, and a third where it passes through the diaphragm. Of the three the uppermost is the narrowest.

Function.—The esophagus conveys food and fluid from the mouth and pharynx to the stomach.

Examination of the Esophagus.—Frequently it becomes necessary to determine the presence of a stricture or diverticulum. The esophagus is palpable on the left side of the neck behind the trachea.

Auscultation of the esophagus is done in order to note the presence or absence of the sound produced by swallowing. In order to auscultate the esophagus in the neck, the stethoscope should be placed at the left side of the trachea. In the upper part of the thoracic course of the esophagus (as far as the sixth dorsal vertebra) the stethoscope should be placed just to the left of the dorsal spine, and below this just to the right of the vertebra. The patient takes a mouthful of water, and retains it until told to swallow.

When he swallows, one hears a noise similar to that heard in one's own ear on swallowing saliva. The higher up one listens, the louder is this sound. If an obstruction is present, the sound is either not heard at all below the point, or it is greatly delayed.

In exploration of the esophagus it is best to use a long, red rubber stomach tube, No. 20 or 21 in the English scale. It should be at least a yard long, not too thin in the wall, rounded at the end, and with at least one large lateral eye. For the method of introducing the stomach tube, the reader is referred to the article on the stomach.

The presence of any blood on the tube after its withdrawal is an indication of the presence of ulceration. Sometimes also fragments of new growths can be detected in the eye of the tube.

Dysphagia or difficult swallowing may be dependent upon enlargement of the tonsils, paralysis of the soft palate such as occurs in diphtheria, inflammation of the pharynx, retro-pharyngeal abscess, spasmodic and organic strictures of the esophagus, pressure from without and dilatation of the esophagus.

CATARRHAL ESOPHAGITIS.

Etiology.—This may be acute or chronic. It develops similarly to catarrhal conditions of other mucous surfaces. It may be the result of mechanical, toxic and thermic irritants, or infectious influences, from the extension of catarrhal conditions in the stomach, pharynx, or the bronchi, or inflammatory processes of the mediastinum. It may develop as a

hypostatic catarrh from chronic cardiac or respiratory diseases.

The desquamation of the epithelium is more pronounced than is the engorgement with blood and redness of the mucous membrane. Follicular and epithelial ulcers may result.

In the chronic form there is an abundant formation of mucus. The mucous membrane is thickened and is discolored a brownish-red. The muscular layer undergoes an inflammatory thickening.

Symptoms.—These are often indefinite. There is a deep seated pain in the course of the vertebral column or between the scapulæ, also pain and difficulty in swallowing and even regurgitation of the food. In acute cases, plugs of desquamated epithelial cells are ejected.

Prognosis.—This depends upon whether the cause can be removed or not.

Treatment.—If there is any cause still operative it should be corrected, as the use of alcohol or tobacco. In the acute form, the patient should rest, and cool liquid nourishment be used. If pain is severe, the sucking of bits of ice, or the use of mucilaginous drinks are of service. If the pain is very severe, all food and liquids should be given by the rectum; cold may be applied to the vertebral column or to the sternum by means of an ice bag or by cold moist compresses about the chest.

In the chronic form, *Calendula cerate*, or mild *Hydrastis cerate*, carefully applied by means of a sponge bougie is of benefit.

For those cases that are dependent upon chemicals, the proper antidote should be applied and its effects neutralized. In the acute catarrhal cases the remedies required are *Aconite* when there is a history of exposure to cold followed by fever, restlessness, anxiety, etc. *Belladonna* should be studied when there is intense pain with fever, esophageal spasms and more or less arterial excitement. *Gelsemium* when there is distress with prostration. *Bryonia alba* and *Rhus toxicodendron* should be studied when there is associated rheumatic history. In the more chronic type of cases the treatment of pharyngitis should be studied.

PHLEGMONOUS ESOPHAGITIS.

This is a form of esophagitis in which there is supuration in the submucosa of the esophagus. This infiltration may extend to the muscular layer. The pus frequently ruptures into the lumen of the esophagus. It is difficult to recognize. The most positive indication is the appearance of the signs of constriction of the esophagus followed by a regurgitation of pus and relief. It is impossible to state positively that it is not an abscess in neighboring structures. In some cases it is impossible to arrive at any positive cause. In other cases it is dependent upon the impaction of foreign bodies, intense corrosion, infectious disease, extension of inflammatory processes, or of suppurative processes from surrounding organs.

The treatment of these cases is symptomatic and surgical.

SPASM OF THE ESOPHAGUS.

Synonyms.—Esophagismus, Spasmodic stricture.

Etiology.—This is observed most commonly in young females and in those suffering from a central neurosis, chorea, epilepsy, tetanus, hysteria, hydrophobia. It may occur during diseases of the central nervous system. It may be the result of irritation, the introduction of hard articles of food. It occurs reflexly at times as the result of enlarged tonsils, chronic pharyngeal catarrh, catarrh of the esophagus, carcinoma of the esophagus or stomach, intestinal worms, or diseases of the sexual organs. It may be dependent upon emotional disturbances.

Symptoms.—The principal symptom is difficulty in swallowing. Liquids are swallowed better than solids. The act of deglutition is attended with a sensation of internal constriction which may appear upon the mere thought of food. The introduction of a sound is difficult or it may be spasmodically grasped and cannot be pushed onward. But if the sound is allowed to remain for a short period it can be passed without difficulty. The condition may persist spasmodically, or continuously for hours, days, or months, according to its cause.

Diagnosis.—The constriction usually occurs near one of the extremities of the esophages. There is usually hysteria associated with this condition. It is usually possible to distinguish esophagismus from an organic stricture by the fact that while the bougie encounters stenosis during the active stage, it passes down freely when the spasm is not present.

SPASMODIC STRICTURE.

1. The patient is of the nervous, hysterical type and most often a woman.
2. The onset is sudden and paroxysmal and dysphagia is wholly absent at times.
3. In the passage of the bougie gentle pressure usually overcomes the stricture and there is neither mucus nor blood upon the bougie.

ORGANIC STRICTURE.

1. The patient is of middle age, not necessarily nervous, usually a man.
2. The onset is gradual and constant and dysphagia gradually increases.
3. Sooner or later the obstruction becomes constant and the bougie if passed brings up mucus and blood.

Prognosis.—This is dependent upon the cause and whether it is amenable to treatment.

Treatment.—In all these cases, most careful search must be made to arrive at and to remove the exciting cause, if possible. The general nutrition of the patient should be improved. Many of these patients can swallow liquid food, so large quantities of milk and nutritious soups should be administered. In other cases only solid food can be swallowed. In such cases small but frequent meals should be the rule. In some cases placing the patient in bed and instituting rectal feeding is beneficial. Lavage is indicated in these cases.

The introduction of an esophageal bougie is of service as it is usually followed by a relaxation of the stricture so that food can be taken following its use. Care should be exercised not to overlook an aortic aneurism before introducing the bougie.

Cajaput.—This remedy in the 3x has been of service in spasms of the esophagus with severe, cramping, constricting pains referred to the esophagus with inability to swallow solids or semi-solid foods.

Baptisia has also been reported as curative in this condition when there was difficulty in swallowing anything but fluids.

Other remedies that appear to have some influence over this condition are *Ignatia*, *Conium*, *Hyoscyamus*, *Nux vomica* and *Pulsatilla*.

PARALYSIS OF THE ESOPHAGUS.

Etiology.—This may occur as the result of diphtheria, syphilis, alcoholism, plumbism and enlarged lymphatic glands pressing on the peripheral nerves, but it is more commonly due to an extension of a bulbar paralysis.

Symptoms.—This condition is rarely met with. The bolus of food remains in situ if large and is not swallowed readily. Fluids pass down more readily. The food may accumulate in the esophagus and cause dilatation of the tube.

Prognosis.—This depends upon whether the cause can be removed or not.

Treatment.—The treatment consists in the management of the causative disorder. Diphtheric paralysis requires *Gelsemium*, *Cocculus* or *Causticum*, while if syphilis is the cause, such remedies should be employed as will meet this condition. Alcoholism should be stopped. The Iodide of Sodium usually antidotes the effects of Lead. Faradism may be of some service and should be applied by means of a suitable sound electrode. Nourishment should be introduced by means of a stomach tube.

CARCINOMA OF THE ESOPHAGUS.

Etiology.—This occurs late in life, and in men twice as often as in women. There is often a family history of malignant disease. The immediate cause has not been determined, but cancer is observed frequently in those who are drinkers and smokers and where there has been an ulcer. It has been thought that the irritation of the esophagus by alcohol and tobacco might be the cause. Hot articles of food and foreign bodies have been thought to be the cause in a few cases, as well as ulcers of the esophagus.

Pathology.—Almost all cases of cancer of the esophagus are of the squamous epithelial variety. It is nearly always primary in the esophagus. There are few cases on record in which it is believed to have spread from other organs. The most frequent site of its development is just above the cardia, the next is opposite the bifurcation of the trachea, while it is least common at the upper portion of the esophagus. It usually begins as a small insular formation in the epithelial lining and is gradually transformed into girdle-shaped or annular carcinoma encircling the esophagus like a ring. The mucous membrane is thickened as are the muscular and surrounding connective tissues, and stenosis of the esophagus results with dilatation of the esophagus above this point. The tracheo-bronchial glands are enlarged and undergo carcinomatous infiltration. Like carcinoma elsewhere there is a tendency to constant growth and to disintegration. The surrounding structures are pressed

on and paralysis of the recurrent laryngeal nerve may result. Rupture of the esophagus often follows the disintegration.

Symptoms.—The first symptom is usually a progressively increasing stenosis of the esophagus. Other suspicious symptoms are pain, which is worse while attempting to swallow, and paralysis of the recurrent laryngeal nerve. The pain may antedate all other symptoms by months. It is localized at times in the vertebral column, at other times behind the sternum. It is worse at night and disturbs the sleep. During this period there may be no resistance to the bougie, but there is a sensitive point felt while passing the bougie. The paralysis of the recurrent laryngeal nerve is the result of pressure upon the nerve, or infiltration by the new growth in the trunk of the nerve. Both nerves may be involved, but more commonly it is the left.

The difficulty in swallowing begins as a rule gradually, but may appear suddenly. The patient notices that the bolus of food does not pass beyond a certain point without difficulty, and as a result smaller amounts are swallowed at a time, till finally only fluids can be taken, and in time all foods, both solid and fluids are regurgitated. The esophagus in the meantime has dilated above the point of the stenosis from the retention of food. The patient often remarks that the regurgitated food tastes sweet owing to the starches having been partially transformed into sugar by the action of the saliva.

During this time the patient is undergoing pro-

gressive emaciation, the skin acquires a grayish-yellow, earthy, leathery and wrinkled appearance. There is a general asthenia, cerebral anemia, tinnitus aurium, palpitation of the heart, and syncope. The abdomen presents a scaphoid appearance. The bowels are constipated. The urine contains large quantities of indican. The duration of the disease is from six months to two years.

Complications.—These are paralysis of one or both recurrent laryngeal nerves, aspiration pneumonia, abscess and gangrene of the lungs, paralysis of the sympathetic nerve, serious hemorrhages, rupture of the esophagus, spinal pressure paralysis, and secondary or metastatic carcinoma in other organs.

Diagnosis.—This is usually made by the exclusion of local injury, syphilis and tuberculosis. The patient is past the meridian of life and has a constriction of the esophagus which is developing without assignable cause. It increases gradually and there is progressive asthenia. Pain is a prominent symptom early in the case, while later the tissue destruction involves the nerve supply and pain is no longer experienced.

It should be distinguished from aortic aneurism, and enlarged glands pressing upon the esophagus.

Prognosis.—There is a fatal termination within two years. It is impossible to secure sufficient absorption from nutrient enemata to maintain life for a prolonged period. Resection of the carcinomatous portion of the esophagus has been undertaken when it is in the cervical region, though it is seldom found there.

Treatment.—The nutrition of the patient should be maintained. The most suitable diet consists of liquids and soft food, milk, broths, milk with tea, milk with chocolate, milk with cocoa, eggs, rice, oatmeal gruel prepared with milk, beef tea, scraped ham or tenderloin, or chopped meats. The systematic use of a bougie is of service in keeping the esophagus patulous. When the stricture is impassable gastrostomy or nutrient enemata must be resorted to. Gastrostomy has not been attended with brilliant results, but it has usually been undertaken late in the case, and as a result the operation has not had a fair trial.

DIVERTICULUM OF THE ESOPHAGUS.

This is a circumscribed dilatation of the esophagus.

It is known as pulsion-diverticulum, and traction diverticulum, according as the dilating force is applied from within outward or traction is exercised from without.

The former is always situated at the junction of the pharynx with the esophagus and is rather a part of the pharynx. It may attain the size of the child's head and is usually a congenital defect of the muscular covering. Particles of food accumulate in it and may be regurgitated. At times the bougie passes into the esophagus, while at another attempt it passes into the diverticulum. Traction-diverticula are not recognized during life as they are small. They are dependent upon inflammatory alterations of the trachea-bronchial lymph-glands and as a result are most common on a level with the bifurcation of the trachea.

The danger from traction-diverticula is their tendency to rupture which may occur spontaneously or as a result of incarcerated hard particles of food. This rupture may take place in the air passage and produce a most distressing irritating cough, as well as inflammation, suppuration and gangrene of the lungs. It may, however, rupture into the mediastinal connective tissue and produce putrefaction or accumulations of gas, or both, or into the pleura, the pericardium or the aorta, when there develops pleurisy, pericarditis or death from hemorrhage. The pressure produced by the pouch gives rise to dysphagia. This in time may result in death from starvation. The passage of the bougie shows that there is no organic stricture.

There is but little to be done for these cases from a medical standpoint. In a few cases the pouches have been removed with good results. In other cases gastrostomy has been necessary and the patients have died of starvation.

SPONTANEOUS RUPTURE OF THE ESOPHAGUS.

There is on record the report of several cases in which spontaneous rupture of the esophagus has occurred while the patient was in good health. In some cases it occurred during vomiting. The cases have been mostly men who were addicted to the use of alcohol. The rupture has been at the cardia and extended upward. The patient was aware that something had ruptured and complained of agonizing pain in the course of the vertebral column. There is a

sense of impending death, coldness, pallor of the skin and a small pulse. Signs of pneumothorax and subcutaneous emphysema were present as a result of air extending from the esophagus. There was inability to swallow, attended with nausea and vomiting. The food from the stomach passed into the mediastinum. There is an increasing asthenia and death usually occurs within twenty-four hours.

Prognosis.—This is unfavorable.

Treatment.—This consists in relieving the pain and maintaining the strength.

DILATATION OF THE ESOPHAGUS.

This may be congenital, but more frequently it is dependent upon a stenosis of the lower end of the tube which, hindering the passage of the food, results in its dilatation. Its walls at first become hypertrophied while later they dilate. The partial congenital dilatation of that part of the esophagus which is situated below the diaphragm constitutes what is known as the ante-stomach.

In the majority of these cases a small quantity of food passes to the stomach, though at times regurgitation of the food takes place into the larynx and coughing results. A bougie shows the large dimension of the cavity and the narrow orifice below, both of which are characteristic.

Treatment.—Galvanism has benefited some of these cases, as has the passing of a tube that will carry the food directly into the stomach and prevent the further dilatation.

CONGENITAL MALFORMATIONS OF THE ESOPHAGUS.

These comprise cases in which there is entire absence of the esophagus, those in which there is obliteration of certain portions of the esophagus, and congenital fistula of the neck due to a want of closure between the second and third branchial clefts and involving the esophagus. There may be dilatations or diverticula. There may be fistulous communications with the trachea or with a bronchus. There may be a double esophagus, and a stricture that partially closes the lumen of the esophagus.

SOFTENING OF THE ESOPHAGUS—ESOPHAGOMALACIA.

This occurs during the prolonged course of tuberculous meningitis and diseases of the brain. The esophagus is soft, friable and tears easily. This condition is seldom recognized during life.

PEPTIC ULCERS OF THE ESOPHAGUS.

These are rare. When they do occur they are situated near the cardia. They have sharp margins and are usually round. They are seldom recognized during life.

The dangers are hemorrhages, perforation, cicatrization with stenosis of the esophagus and carcinomatous degeneration.

The management is similar to that of gastric ulcer.

THRUSH OF THE ESOPHAGUS.

This is usually an extension from the oropharynx.

geal cavity. It produces difficulty of swallowing and is associated with the same conditions as thrush of the mouth.

In some cases the introduction of sounds will be found of service. The remedies mentioned before for thrush are of service.

STENOSIS OF THE ESOPHAGUS.

Synonym.—Organic stricture.

Etiology.—This may be due to cicatricial narrowing, the result of scars from ulcers. It may be the result of compression or obstruction as from polypoid tumors or malignant growths within the esophagus.

Pathology.—While the stenosis may involve the whole length of the tube it is most common at the lower third. The stenosis varies from a slight narrowing to a complete stenosis. There is frequently a dilation of the esophagus above the seat of the stenosis.

Symptoms.—As the stenosis increases, dysphagia with emaciation and debility progresses. The swallowing of solid food gives the most difficulty. Regurgitation of food or fluid of an alkaline reaction occurs. If the case is advanced, auscultation of the esophagus, or the use of the stomach tube or bougie, will locate the stenosis.

Diagnosis.—This is based upon the dysphagia with a gradually appearing emaciation, debility, regurgitation of food and the presence of an obstruction. It should be differentiated from spasms of the esophagus by means of the passage of the tube which may be

arrested at the site of the spasm for a moment and then passes.

Carcinoma of the esophagus appears in those of advanced years, there is present a marked cachexia and often metastatic deposits.

Pressure and stricture is to be eliminated by a careful examination for thoracic aneurism, mediastinal tumors and abscesses, thyroid enlargement, pericardial effusions and disease of the cervical vertebræ. In cicatricial stricture the result of syphilitic or tuberculous disease, or of a corrosive poison, a history of one of these conditions is usually obtainable.

Prognosis.—In many of these cases the relief is but temporary and they terminate fatally.

Treatment.—These patients should receive a finely prepared, nutritious diet. As the stenosis develops dilatation, by means of the introduction of bougies, should be practiced and this must be persevered in. If the stenosis is due to carcinoma of the walls of the esophagus, or to tumors without, dilatation should be avoided.

Electrolysis may be carefully practiced in some cases.

THE ABDOMEN.

CLINICAL EXAMINATION OF THE ABDOMEN.

In making a general examination of the abdomen the patient should be in a dorsal position in a good light. If he is in bed the night shirt should be drawn up and the sheet turned down to a little above the pubes. Before making an examination it should be ascertained that the bladder is empty.

Inspection.—The contour of the abdomen should be carefully noted. If there is any bulging it should be noticed whether it is general or circumscribed. If there is a general fulness, it should be ascertained whether this is dependent upon fat, fluid, flatus, pregnancy or a new growth. If there is a general bulging it should be determined whether this is most pronounced in the antero-posterior or transverse diameter of the abdomen. If the distension is localized it should be noted in what quadrant it is localized, what anatomical structures are in that region and whether there are any movements of the development either with or independent of respiration.

Apart from any bulging, pulsation may be noticed in the epigastric region. This is dependent upon either a distension of the right ventricle, a venous pulsation of the liver, an aortic pulsation, a transmitted pulsation, the result of a new growth over the aorta, or an aneurism. The latter is recognized by the expansive character of its pulsation.

The movement of the abdominal parietes should be

carefully observed, normally they protrude during inspiration and are retracted during expiration. In case of paralysis of the diaphragm the reverse is true. If but one side of the diaphragm is involved, but one side of the abdomen is involved. The cessation of all respiratory movements of the abdomen should be noted as characteristic of peritonitis.

In cases of chronic intestinal obstruction peristalsis of the intestines may be visible above the obstruction. If the obstruction is at the ileo-cecal valve, the distended coils of the small intestines will be seen protruding in the centre of the abdomen, but should the obstruction be lower, as in the sigmoid or rectum, the distension will be observed around the periphery of the abdomen, a result of distension of the colon. Peristaltic waves may also be noticed in a dilated stomach. The peristaltic wave runs from left to right in the distended transverse colon. If the waves are absent in such cases they may be developed by tapping the abdomen sharply with the finger or by striking the abdomen with a wet towel.

The condition of the abdominal parietes should be noticed. If distended, they are smooth and glassy, white lines in the skin indicate former distensions. Enlarged superficial veins should be carefully observed as well as the direction in which the blood in them is flowing.

In cases of obstruction of the inferior vena cava, the inferior epigastric veins will be full from the establishing a collateral circulation. In these cases a large lateral vein may be noticed running vertically

up the body in the mid-axillary line that establishes a communication with the radicles of the superior vena cava. In cases of portal obstruction there may be present dilated veins (*caput medusæ*) radiating from the umbilicus. These are the result of the establishment of a collateral circulation between the portal and parietal veins.

Pigmentation of the abdominal wall along the median line (*linea nigra*) is a sign of pregnancy. The umbilicus should be observed, if it is bulging, depressed or level with the surface. The inguinal region should be carefully examined for hernia.

Palpation of the Abdomen.—During this examination the patient should be on his back with the knees drawn up, the shoulders slightly raised, the mouth open and his attention diverted from the examination as much as possible that the abdominal walls may be relaxed. The physician's hands should be warm. For ordinary palpation but one hand should be employed. It should rest upon the abdomen a short period before palpation is actually commenced that the muscles may relax. The hand should be placed gently upon the abdomen and the examination should be made from the metacarpo-phalangeal joints. Punching with the finger tips should be avoided. During expiration the receding abdominal wall should be carefully followed by the palm of the finger tips which are caused to make a rotary motion. At this time and in this manner the deeper tissues are better examined than by simple pressure.

In examining the lateral regions of the abdomen,

bimanual palpation is of service. In employing this form of examination the physician should occupy a position at the side of the bed. One hand should be placed posteriorly in the space between the crest of the ilium and the lower rib, while the other hand is placed upon the abdomen. By means of the hand placed posteriorly, the contents of the abdomen are brought forward against the hand resting upon the abdomen. The hand occupying the anterior position should be kept as quiet as possible.

In performing palpation of the abdomen the first thing to be observed is the presence or absence of tension of the abdominal walls, and the resistance met with. If resistance is met with, it should be ascertained whether it is local or general. Normally palpation of the abdomen is painless. A diffused resistance is generally an indication of a general peritonitis, while a localized resistance is characteristic of a localized peritonitis. If tenderness is present its extent and point of greatest intensity should receive careful attention.

Should a tumor of any form be encountered it should be carefully examined and care should be exercised to ascertain if it is not a contracted portion of the rectus muscle. If it is suspected that the muscle is the source of the tumor, the finger may be passed under the edge of the muscle, and it may be seen if the muscle thickens when the patient raises himself from the bed. If it is decided that a tumor is present it should be determined whether the tumor is within the abdomen or in the abdominal wall. If it is

within the abdomen the abdominal wall can be moved over it, unless there are adhesions binding it to the abdominal wall. If it is in the abdominal walls it not only moves with the parietes but the fingers can grasp the tumor and move it.

If the tumor is found to be intra-abdominal, the question to be decided is its origin and whether it is abdominal or from the pelvis. To ascertain if it is from the pelvis, the edge of the hand should be pressed backward a little below the umbilicus and in the direction of the prominence of the sacrum. By this means it can usually be ascertained whether the tumor passes down or not.

The size and shape of the tumor should be noted as well as whether it is smooth or nodular. The presence or absence of fluctuation should be investigated as well as its mobility. The direction in which it can be moved should be noticed. It should be noticed whether its position is influenced by respiration or not. Tumors connected with the liver and spleen move freely with respiration, while those connected with the other abdominal organs do not move with respiration at all unless there are adhesions.

The presence of gurgling and splashing should be considered during palpation. Gurgling is produced by the passage of gas or fluid through a constricted part, as a stenosed pylorus or a stricture of the intestine. A splashing sound is excited over a dilated stomach some hours after a meal.

The umbilicus should be observed, as in malignant diseases it is retracted. In certain cases it will be

found advisable to palpate the abdomen while the patient is in the knee chest position. In obscure abdominal cases, the examination of the patient while in a hot bath is often of great service, and this is preferred in certain cases to an anesthetic. The patient is placed in the bath when the temperature is 100° F., this is raised to 110° F. in from five to ten minutes. In some cases it will require to be raised to 120° F. before the desired result is obtained.

Percussion.—Over the normal abdomen percussion yields a resonant note except when the liver and splenic dullness are met with or when the bladder is distended. The resonance of the note depends upon the depth of the air space and the tension of the containing wall. Should dullness be detected in an abnormal position, it should be ascertained whether it is constant or changes its position with the movements of the patient.

Hydatid cysts yield a percussion note attended with a "hydatid thrill;" to elicit this condition, three fingers are placed over the cyst and the middle one is firmly percussed; the percussing finger is allowed to rest after each stroke, and the thrill will be experienced in the two adjacent fingers. This sign, while characteristic, is not present in all cases.

Auscultation.—This is not of extensive service in the examination of the abdomen. It may be used in listening for swallowing sounds, abnormally conducted heart sound, friction sounds due to lymph on the surface of the peritoneum, the bruit of aneurisms, the presence of the uterine soufflé or heart sounds.

The auscultation-percussion method may be resorted to, in certain cases, with advantage.

Measurement.—This is of service in general swelling of the abdomen and if practiced upon from time to time marks the course of the disease. The measurement should be made at the umbilicus, or the point of greatest distension.

Ascites, or fluid in the peritoneal cavity, should always receive special attention. If there is sufficient fluid to cause general distension it may be mistaken for fat in the abdomen and abdominal wall, gas or food in the intestines, and new growths.

Fluid gives a dull note on percussion. The dullness is not always absolute, owing to the proximity of the bowel. When the fluid is not sufficient to fill the abdomen, its upper limit is usually horizontal, but may show irregularities owing to the fluid remaining between the coils of the intestines. Free fluid also shifts its position with that of the patient. If the patient is turned upon his side and time allowed for the intestines to float up it will be found that the area of resonance is now above the upper flank and the area of dullness has risen on the lower side.

If the fluid is but small in amount, the patient should be placed in the knee-elbow position and may be determined by percussion when the fluid will settle about the umbilicus. An important sign of ascites is the transmitted thrill which is elicited when the patient is upon his back. One hand of the examiner is placed over the lumbar region of one side, while the other lumbar region is sharply tapped with fin-

gers of the other hand. A distinct impact will be felt to pass from one hand to the other. If the amount of fluid is large, vibrations may be visible over the abdomen as well as palpable. Fat can usually be distinguished from fluid by taking the abdominal wall in the hand and pinching it up.

Gas is distinguished by percussion. New growths may be mistaken for ascites. An ovarian tumor causes an antero-posterior bulging, while in ascites it bulges laterally.

In ovarian tumor the dullness is central and does not change with the position of the patient. In ascites the greatest dullness is about the flanks and shifts with the movements of the patient. In ascites the umbilicus is flat or bulges out, and in ovarian tumors it bulges out.

Pain.—The causes of abdominal pain are many. Its importance and significance demand of the physician an early and a most thorough examination, that its interpretation may be clearly understood. The old adage that an abdominal pain is the cry of a hungry nerve for food, or an appeal for a sleeping potion, is no longer tenable, and it demands an explanation in the light of pathological anatomy or chemistry. The place of pain in the clinical history of a lesion varies. In some cases it indicates the advent of the lesion, while in other cases it is only present at the close.

When called to a case in which abdominal pain is present, the physician should secure as complete a clinical history as is possible, obtaining all informa-

tion regarding what preceded, accompanied or followed the advent of the pain. He should determine the cause of the pain and avoid the administration of opiates, which dulls his power of observation more than it does the patient's pain. Ascertain what the patient was doing just at the time, or before the time of the onset of the pain. The effect of the pain upon the patient should be observed, his facial expression, pulse, temperature, attitude and mental condition, as well as changes produced in the abdomen, as tenderness, muscular rigidity, distension, or change of contour.

The site of the initial pain while not always trustworthy from a diagnostic standpoint, yet is frequently of service, and is decidedly of more service than the diffused pain which occurs later. In certain cases the pain is at first diffused and later becomes localized.

One of the most frequent causes of abdominal pain is an inflamed appendix. The pain at first is frequently referred to the epigastric or umbilical region and is diffused, while later it becomes localized in the appendiceal region, and is associated with tenderness, muscular rigidity, and vomiting. The pulse and temperature are variable and may be misleading. In certain cases there is no pain till the peritoneal coat is reached by the pathological process, when the pain appears suddenly and is intense and agonizing in character.

It should be borne in mind that severe pain in the right inguinal region may be dependent upon an infected gall-bladder, a floating kidney, an occluded

intestine, a ruptured extra-uterine gestation sac, a pleurisy, a specific salpingitis or a specific prostatitis.

In chronic appendicitis there is a history of repeated attacks, while in perforating appendicitis the pain is agonizing and is followed by shock, normal or sub-normal temperature, a rapid pulse, extreme rigidity of the abdominal walls, meteorism, and the pain subsides till the development of a more general peritonitis.

In gangrenous appendicitis the pain is intense, with extreme muscular rigidity, tenderness, rapid pulse, fever and anxiety. In all cases of appendicitis the sudden subsidence of abdominal pain should be considered grave, as indicating a perforation.

Ectopic pregnancy.—When the tubal gestation sac ruptures there is sudden, excruciating, agonizing pain, which at first may be diffused, but later becomes localized low down in the pelvis. It is persistent and is attended with muscular rigidity, tenderness and an anxious expression. If the hemorrhage is severe, there is recurrent syncope and extreme anemia. In these cases there is usually a history of absence of the menstrual flow, and a rectal and vaginal examination reveals a mass behind or to the side of the uterus, which imparts to the examining finger an elastic, boggy feeling. The uterine cervix may be soft and patulous. The pulse rate is quickened.

Intestinal obstruction.—From whatever cause, the severity of the pain in these cases is in proportion to the completeness and the suddenness of the obstruction. In intussusception, which is the most frequent

form met with, the patient is usually an infant or a child. The pain appears suddenly and is intermittent, and colicky in character. The contents of the bowel below the site of the obstruction are evacuated. Tenesmus becomes a prominent symptom and the bloody mucilaginous discharges are free from fecal odor. Vomiting becomes persistent, while the pain increases in intensity and is more persistent early in the history of the case, the abdomen is lax and soft, but it soon becomes distended and sensitive and the distended coils of the intestines may be seen through the abdominal walls. If early in the case a careful examination is made, a tender, slightly movable, sausage-shaped tumor may be outlined by palpating in the ileocecal region, in the rectum or it may protrude from the anus.

No gas or feces are passed by the rectum, except what may be below the lesion. The pain becomes more intense, the facial expression more anxious, the strength rapidly fails, and the extremities become cold, the abdomen drum-like and the pulse weakens till life is exhausted. When a small coil of intestine becomes strangulated in the inguinal canal, femoral canal, or at another point, the pain is intense and paroxysmal in character. In all cases of severe abdominal pain, the various hernial sites should be carefully examined. In these cases a tumor is not always present. The abdomen is distended and tympanitic and the distended intestinal coils are readily seen through the tense abdominal walls.

Volvulus of the small intestine gives rise to sud-

den, acute, intense pain, with early persistent and distressing vomiting, which is seldom stercoraceous. There is frequently intense thirst. The centre of the abdomen is usually distended, while the periphery is flattened.

If the sigmoid is the seat of the volvulus, the initial pain may not be severe, but it gradually becomes more severe, distressing and localized. Meteorism, which at first is confined to the left iliac fossa, gradually extends upward in the line of the colon. Vomiting is not a prominent symptom, and the small amount of fluid that the rectum will hold is characteristic of the lesion.

Strangulation dependent upon bands is, at the onset of the pain, sudden and severe, and soon becomes agonizing, while constipation is absolute, and vomiting and abdominal distension are present. The rectum is empty and there is a history of previous attacks of peritonitis.

The possibility of an incarcerated diaphragmatic hernia should not be forgotten in cases characterized by severe persistent paroxysmal pain in the epigastric and hypochondriac regions.

In mesenteric embolism and thrombosis, the onset is sudden and severe, the pain usually appears suddenly, it is severe and at times agonizing and may be continuous or intermittent. Vomiting appears early in these cases and usually consists of blood, and diarrhea of a bloody character may be present. The pulse is rapid and the temperature is subnormal. The abdomen is rigid and distended. Constipation may be complete, but in some cases diarrhea is present.

The course of the disease is rapid and the person who considered himself well two days before becomes exhausted, delirious and dies. This condition is usually mistaken for an intestinal obstruction.

When a duodeno-jejunal hernia becomes strangulated, there is complaint of sudden colicky pain in the epigastrium, vomiting is persistent and distressing, but it is not fecal in character, and constipation is complete. The colon is collapsed, the thirst is intense, and the pain excruciating.

In cases of mechanical ileus, the pain is at first slight, but it gradually becomes intense and frequent, and the indications of complete obstruction become more distinct and impressive.

Obstruction due to enteroliths should be remembered. The pain increases in intensity and prostration is pronounced.

Perforating ulcer of the stomach. There is a clinical history of suffering for some time from gastric disturbances. The severity of the initial symptoms will depend upon the site and size of the perforation, the quantity and character of the escaped gastric contents and the presence or absence of adhesions. The patient is seized with a sharp, stabbing, tearing pain in the region of the stomach radiating to the inferior angle of the right scapula. Vomiting soon takes place, and its severity and character depend upon the contents of the stomach. The muscles of the epigastrium become rigid. The pulse is rapid or feeble. The respirations are rapid and shallow. The thirst is intense. The pains are paroxysmal. The

abdomen becomes distended and there are indications of the development of peritonitis.

The perforation of duodenal ulcer is attended with an intense stabbing, excruciating pain which is followed by collapse. The gastric contents are vomited, there is constipation, while the pulse is rapid, small and feeble. The respirations are accelerated. The face presents a pinched, anxious expression. The extremities are cold. The parietes are rigid, this may be most pronounced upon the right side. There is abdominal tenderness which may be most apparent upon the right side. The abdominal movements are restricted. The extravasated contents are guided into the right appendiceal region and become located here, and have been mistaken for a ruptured appendix.

Typhoid perforation should be recognized by the appearance of sudden and severe stabbing, paroxysmal pain in the right lower quadrant of the abdomen. This is speedily attended with a sensation of coldness, the temperature drops and may be subnormal. The extremities are covered with a cold perspiration. The pulse is weak and rapid. The abdomen shows increased distension.

Acute hemorrhagic pancreatitis is usually met with in those about mid-life and there is intense agonizing pain in the region of the pancreas. This pain is usually attended with collapse; as consciousness is regained, there is vomiting of a greenish-yellow fluid which contains bile and altered blood. The region is extremely tender and rigid. The prostration is severe, while the skin is cold and is covered with a cool, clammy perspiration. The temperature grad-

usually rises, while the pulse is rapid and feeble, and the respirations are shallow. There is frequently a history of repeated attacks of indigestion and gall-stone colic. Cyanosis of the face, abdomen or thigh may be present. The mass becomes more prominent, the pain continues and death occurs in from three to seven days.

In cases of renal colic, when dependent upon a renal calculus that has occluded the ureter, the pain is sudden, severe and excruciating, and radiates downward from the renal region to the testicle and thigh. The pain may be so intense that the patient faints. He is usually pale, cold and greatly distressed. He has a constant desire to force out a few drops of urine, which is bloody. He can find no relief in any position. The palpating hand finds extreme tenderness in the renal region and along the course of the ureter, while the corresponding testicle is most sensitive and retracted. The urine contains blood and pus cells and renal epithelium. In some cases the radiograph is of great service in confirming the diagnosis.

Perforation of the gall-bladder is indicated by a sudden agonizing pain which appears in this region, in middle aged women. The pulse is rapid and small, and the region of the gall-bladder is extremely sensitive. The pain soon becomes localized and there is a history of repeated attacks of gall-stone colic.

The pain of biliary colic appears suddenly, is agonizing and is usually associated with jaundice.

The onset of phlegmonous cholecystitis is accompanied with pain and tenderness. The pain, however, may be referred to the appendiceal region, but the

pain and the fact that the mass moves during respiration, the fever, the absence of constipation and at times the presence of a leucocytosis are characteristic.

In torsion of an ovarian pedicle, the pain is sudden, severe and agonizing and is associated with vomiting, collapse and abdominal distension. The initial pain is confined to the region of the tumor. The tumor frequently becomes enlarged and is associated with great prostration, and signs of hemorrhage.

Torsion of undescended testicle, or great omentum, and cases of hydronephrosis, each produce great pain.

The pain attending specific salpingitis simulates appendicitis, but a combined rectal and vaginal examination, together with an accurate history, will usually lead to a correct diagnosis. In these cases the pain is usually of sudden onset. The patient remains quiet with the limbs drawn up, the face is flushed and there is an anxious expression. The abdomen is rigid and tender and the bimanual examination reveals a large boggy mass in the region of the Fallopian tube, palpation of which increases the pain.

In tuberculous peritonitis the onset is indicated by violent paroxysmal pain in the abdomen. Deep pressure causes but little or no pain, but after the withdrawal of the hand, following deep pressure, there is severe pain.

It should be remembered that cardialgia occurs regularly with or before the menses in women and girls. Gastralgia is frequently observed in men suffering from gonorrhea, stricture and spermatorrhea.

Violent pain referred to the region of the stomach

may be dependent upon gastritis. In these cases the stomach is sensitive to pressure. The pain may be depends upon hyperacidity of the gastric juice. In some cases, owing to a hyperesthesia of the gastric nerves, the normal acid secretions may give rise to pain. In these cases the pain occurs at the height of digestion. In hyperchlorhydria not associated with ulcer, the pain does not occur so regularly as it does with ulcer.

A positive diagnosis of hyperchlorhydria should be made only after the removal of the stomach contents and the quantitative determination of the hydrochloric acid made.

Cicatrices after extensive operations and chronic peritonitic processes of the pelvis are the cause of manifold sensations which radiate upward toward the stomach. Hyperesthesia of the gastric mucosa dependent upon an instability of the gastric nerves in which they react abnormally to certain stimuli.

Pain having its seat in the abdominal parietes should be remembered in this connection. In this connection rheumatism of the abdominal muscles should be borne in mind. The pain is elicited both to touch and pressure. It moderates under rest and relaxation and does not manifest the paroxysmal character of colic.

In lumbo-abdominal neuralgia the sensitiveness on pressure is present in only a single intercostal space, extending from the vertebra forward and is felt at definite points. The pain is concentrated superficially in the skin and radiates towards the anus and genitals.

THE STOMACH.

This is a saccular dilatation of the alimentary canal which is continuous with the esophagus above and with the duodenum below. It occupies a position on the left side of the abdomen, below the diaphragm and to the left of the liver. It is about twelve inches in length and four inches wide. Its long axis is obliquely from above, behind and to the left, downward, forward and to the right. It is wholly covered with peritoneum.

By reason of its loose peritoneal connection, it is one of the most movable of the abdominal organs. The cardiac end is the most fixed point, it is posterior to the seventh costal cartilage and one inch to the left of the sternum. The fundus rises behind and above the apex of the heart to the level of the sixth costochondral articulation. The location of the pylorus is not constant, it is usually one inch to the right of the median line and two inches below the ensiform cartilage. The upper border is indicated by a short curve with its concavity upwards connecting with the cardiac and pyloric orifices. The greater curvature crosses the median line of the abdomen, midway between the ensiform cartilage and the umbilicus.

The Stomach Tube.—The use of the stomach tube is most efficient in the diagnosis and treatment of many gastric affections. A few patients will object to its use, but when its purpose has been once fully explained they seldom protest. In highly nervous

patients it may require two or three efforts before it is passed. The size of the tube should vary according to its use. If it is used for a simple inflation of the stomach, it should be of moderate size, but should it be used for lavage, the largest that the patient can swallow easily should be selected. It is well to remember that the stomach tube has been known to slip wholly into the stomach.

In passing the tube and in lavage of the stomach, the patient's clothing should be protected. There should be a receptacle at hand in case the patient vomits and another to contain the tube. Before passing the tube it should be slightly lubricated with glycerine. In passing the tube the physician should stand behind and to the right of the patient and passes his left hand over the patient's left shoulder, while he holds the tube between the thumb and two fingers of the right hand. The patient is now instructed to sit erect and bend the head slightly forward, and to open the mouth. The tube is now placed on the patient's tongue and pushed gently backward to the pharynx. When it has reached this, the patient is instructed to swallow. As the larynx is seen to descend, the tube is pushed in quickly and is grasped by the pharyngeal muscles and is carried downward to the stomach. Should the patient appear to be at all distressed, the passage of the tube should be stopped for a short period, and he should be instructed to breathe deeply and slowly through the nose. As the discomfort ceases, the tube should be passed on. In removing the tube it should be

compressed between the thumb and index finger, to prevent its contents from dripping over the patient's clothing. Following and preceding its use the tube should be thoroughly cleansed.

Difficulty is at times experienced in passing the tube from the patient bending his head too far back. Another cause is the failure to carry the tube into the pharynx when swallowing is commenced. Caution should also be exercised that it is not pushed too far toward the pylorus. The patient should be instructed not to bite the tube.

In cases of chronic gastritis and chronic alcoholism, there is frequently an irritable condition of the pharynx. This renders the passing of the tube difficult. In these cases, allow the patient to hold a small pledget of cotton in his mouth that has been saturated with a two per cent. solution of Cocaine, or a pastil containing Menthol and Cocaine in the mouth, and swallow the saliva. These have a local anesthetic effect.

If obstruction of the esophagus is encountered, no force should be applied to pass it, as injurious effects may result. No attempt should be made to pass the tube when there is present severe and acute disease of the throat or stomach, peritonitis, perigastritis, advanced carcinoma, or ulcers. It should be avoided if possible in old age, cardiac degeneration and uncompensated heart lesions, in advanced cases of renal disease, cyanosis when there has been severe hemorrhage, and during pregnancy.

Inflation of the Stomach.—This is of service for

diagnostic purposes in various forms of stomach lesions. It is, however, contra-indicated in ulceration of the stomach, in advanced malignant disease, and in acute inflammation of the stomach. There are three methods of inflating the stomach. First by the evolution of Carbonic acid gas, second by the blowing of air into the stomach, and third, auto-inflation. The first consists of dissolving and giving the patient one-third of a cup full of water in which thirty-five grains of Tartaric acid have been dissolved, and a like amount of water in which thirty-five grains of Bicarbonate of Soda have been dissolved. The patient should be in the recumbent position. Effervescence results and by the gas evolved the outline of the stomach is readily recognized. In a small percentage of cases the patient experiences some difficulty, but by having him assume the sitting posture the gas escapes and relief is afforded.

The second method consists in inserting into the stomach a small tube to which is attached a bulb, by means of which air is forced into the stomach. Following the passage of the tube the patient should assume the recumbent posture, and the first few movements of the bulb should be rapid, that by its irritation the pyloric orifice may be closed, after which the movements may be more slowly, till the stomach can be outlined.

Auto-inflation.—By this method with the stomach tube in place an opening is made in the tube near the anterior portion of the buccal cavity. The tube is then clamped outside of the lips. The patient then

closes the lips tightly around the tube and inhales through his nostrils, and exhales into the mouth, the lips being closed, the air is forced into the opening in the tube and down into the stomach.

Extraction of the Stomach Contents.—This is done to ascertain if the stomach contains residue of food, mucus or gastric secretions when it should be empty, also to examine for blood, pus, bacteria for diagnosis, and to remove test meals to ascertain if the process of digestion is being carried on normally. In order that the contents of the stomach may not be diluted it is necessary to extract portions of the contents without mixture of water.

Einhorn's Stomach Bucket is a small silver bucket of oval form to which is attached a strong piece of silk thread. This can be swallowed by the patient and drawn up again, bringing about 2 c.c. of gastric contents.

The stomach tube alone is employed to remove a small quantity of the stomach contents. A soft rubber tube is introduced into the stomach. It is allowed to remain in position for a few minutes or till retching occurs; the tube should then be pinched between the thumb and finger, that the contents may not escape, then it is withdrawn.

One of the most simple methods of extracting the stomach contents is by aspiration. A stomach tube is inserted and by means of collapsible air bulb that is attached to the tube the material is drawn up into the tube.

The use of Dunham's Tassel consists of having the

patient swallow a piece of thread saturated with certain reagents as litmus, Congo red, or dimethyl-amido-azo-benzol which are acted on by the acids of the gastric juice. Another means is by Turck's capsule, which is especially of service in determining whether free Hydrochloric acid is present in the stomach or not and at the same time to obtain sufficient amount of the stomach contents to make a microscopical examination.

One of the objects in the extraction of the stomach contents is to ascertain if the stomach contains food residue and fluids when it should be empty. If in the morning before breakfast a stomach that has been washed out the night before is found to contain a fluid rich in Hydrochloric acid, a condition of permanent hypersecretion is present.

If a stomach is cleansed before breakfast, and remains of the breakfast are found in the stomach at 1 P. M., it is proof that there is a defect in the motility of the stomach, probably due to a myasthenia of the second degree. Should debris be found in the stomach in the morning, the remains of the meal the night before, it should be concluded that there is myasthenia of the third degree, or that there is present a degree of pyloric obstruction.

To determine if the digestive and motor power of the stomach is normal, a test breakfast or test dinner is necessary. The test breakfast may consist of one or two rolls and a cup of tea or water, or any moderate meal. About two hours after this meal has been taken the contents of the stomach are withdrawn, allowed to settle and examined.

The test dinner consists of a large bowl of soup, a piece of beef steak and a roll of bread. In from three and a half to four hours the contents of the stomach should be removed and examined. If the motility of the stomach is normal it should clear itself in seven hours after a dinner or in from two to three hours after a breakfast.

To determine the chemical reaction, ordinary litmus paper should be used. If acid, the blue paper is turned red. If free acids are present Congo-red is turned blue. The free acids may be Hydrochloric, Lactic, Acetic, or Butyric acid.

To test for free Hydrochloric acid there are several reliable tests, the following is introduced here :

RESORCIN TEST.

Resorcin	75 grains.
Cane sugar	45 grains.
Alcohol (94 per cent.)	3½ oz.

From five to seven drops of this reagent are mixed with an equal quantity of gastric juice in a porcelain dish and evaporated by a gentle heat. If no Hydrochloric acid is present, a bright red color will appear just as evaporation is completed.

There are several tests for free Lactic acid. Kelling's test is made by putting one part of gastric fluid and ten times the amount by bulk of water into a test tube. This is treated by adding one or two drops of a five per cent. watery solution of Sesqui-chloride of Iron. If the fluid is green, when viewed against a white background, Lactic acid is present. Acetic or Butyric acid can frequently be recognized by the odor.

Those wishing to pursue the chemical investigation of the stomach contents are referred to works dealing specially on the subject.

ACUTE CATARRHAL GASTRITIS.

Synonyms.—Acute catarrh of the stomach. Simple acute gastritis.

Definition.—This is a catarrhal inflammation of the mucous membrane of the stomach.

Etiology.—It may be due to mechanical injuries, thermal or chemical irritants or an invasion by living organisms, either animal or vegetable. An excess of food, as well as those that are too hot or cold, or spices and drugs may produce this disease. Decomposed foods taken during warm seasons may produce it. Alcohol is a most common cause. Gastritis may be dependent upon fungous growths in the stomach, as well as several varieties of parasites. It may be produced by acute parenchymatous nephritis, scarlet fever, erysipelas, measles or small-pox.

Pathology.—The epithelial lining shows granular degeneration and desquamation, and is covered with a mucous or mucopurulent material which may be streaked with blood.

There is a degree of infiltration of the submucous layer by the leukocytes.

Symptoms.—The disease shows all grades of severity. The appetite is lost, there is a sour, disagreeable taste in the mouth and the patient shows aversion to food. The tongue is covered with a thick

grayish coating, is somewhat swollen, and the margins show the indentation of the teeth. A sense of weight is complained of in the epigastric region. There is also nausea and vomiting of sour, foul, partially-digested food. There is more or less mucus with the vomited material, which is acid in reaction and may contain bile. There is continuous thirst. The epigastric region is tympanitic, painful, and may appear swollen. The patient complains of lassitude, headache, and usually vertigo. The urine is highly colored, decreased in amount and contains uric acid and often indican. As a rule, there is no fever, but the pulse is rapid, small and compressible.

Mild cases recover within a few days. In the more severe forms the vomiting continues while the disturbance may extend to the bowels, and as a result the constipation which is usually present gives place to diarrhea. When the duodenum becomes affected, jaundice may occur. If fever should be present, it is usually remittent in character, and herpes labialis may appear.

Diagnosis.—This is based upon the clinical history, and the symptoms as outlined.

ACUTE GASTRITIS.

1. Vomited material is not fecal.
2. Intestinal movements are not observed through abdominal walls.
3. The vomited matter is largely mucus, may be blood and mucous membrane.

INTESTINAL OBSTRUCTION.

1. Vomited material may be fecal.
2. Such movements are frequently observed.
3. Contents of stomach and intestines are vomited.

ACUTE GASTRITIS.

4. Dependent upon gastric irritation, poisoning or indiscreet diet.
5. Often associated with diarrhea.

ACUTE GASTRITIS.

1. Vomiting is dependent upon the ingestion of food and is attended with nausea, coated tongue and pain in the epigastrium.
2. There is tenderness of the epigastrium.
3. The symptoms are indicative of a local disease.

ACUTE GASTRITIS.

1. The vomiting appears early and is aggravated, and the material may contain blood.
2. The pain and tenderness is confined to the epigastrium.

INTESTINAL OBSTRUCTION.

4. None of these causes are operative.
5. There is obstinate constipation.

GASTRIC SYMPTOMS AT THE ONSET OF ACUTE FEBRILE DISEASES OR CEREBRAL DISEASES.

1. Vomiting is independent of the ingestion of food and is not necessarily attended with nausea, coated tongue or pain in the epigastrium.
2. Tenderness is not usually present.
3. The symptoms are indicative of a general disease.

ACUTE PERITONITIS.

1. The vomiting does not occur so early, is not as aggravated and does not contain blood.
2. The pain and tenderness is more extensive and more tense, while the abdominal distension is more decided.

Both of these diseases are attended with nausea, vomiting, constipation, headache, abdominal pain and tenderness, and febrile symptoms.

Prognosis.—This is favorable, but relapses are common and it may assume a chronic form.

Treatment.—In the management of these cases, the first attention should be devoted to the dietetic management of the case. If the stomach has been over-

loaded and is causing great distress it should be relieved by means of an emetic. If there is a sense of pain and distress, a hot cataplasm may be applied to the epigastrium. Acute inflammation of the stomach, as of other structures, should be treated by rest. No food should be administered, and but little fluid for from twenty-four to thirty-six hours, so irritation of the stomach is avoided. Robust patients can do nicely without any food for several days, while in feeble and anemic patients, when there are symptoms of alarming prostration, enemata of stimulants and predigested albuminous foods may be employed.

To allay the nausea and vomiting, small pieces of cracked ice, or sipping plain soda water, carbonic acid water, cold-lime water, iced champagne, or strong black coffee in dessertspoonfuls every fifteen or twenty minutes will be found of service. At times a hot application, as a poultice, hot brandy on a flannel cloth, or a turpentine stupe placed over the epigastrium is also of service. Large draughts of water to allay the thirst should be avoided, as they frequently prolong the vomiting. If large quantities of fluid have been vomited, an enema of warm physiological salt solution (fifteen grains to the ounce) should be injected up into the sigmoid.

When the time comes for the patient to return to nourishment it should be fluid and so prepared that it will be at once absorbed in the stomach or pass into the duodenum for digestion. It should be given in small quantities, one-half to one ounce of pancreatinized milk, or equal parts of milk and soda or Vichy

water, or whey alone added to beaten white of eggs, beef extracts, peptone solution, meat juice, beef tea, black coffee; meat broths should be allowed to cool and the fats or oil removed. Some patients claim they cannot take milk, but if properly prepared they usually can. Alcoholic stimulants, if possible, should be avoided. If necessary they should be given in milk or beef tea.

Nux vomica.—This remedy is frequently indicated in this disease when there have been errors of diet, with irregular habits, close confinement, mental over-exertion, loss of sleep and debauchery. The bowels are constipated and there are ineffectual efforts to stool, with hemorrhoids. The tongue is coated white, and there is a dull frontal headache. The complexion is sallow and there are bitter, sour eructations, hiccough and heart-burn. There is vomiting of food, mucus and bile. The patient is always worse an hour or two after eating a hearty meal and is irritable and cross.

Graphites.—This remedy has a favorable action on many of these cases when there is vomiting of food with bitter, sour regurgitation of food. The stomach is dilated in many of these cases. The patient is inclined to obesity and suffers from habitual constipation. If the patient is a woman, there is a history of delayed menstruation. In many cases the skin presents an unhealthy cracked appearance.

Bryonia alba.—This remedy should be remembered during hot weather, when an attack is the result of taking cold drinks when heated. There are

sticking pains in the stomach which are worse from motion. The tongue is coated white or a dark brownish yellow. The lips are dry and there is either a lack of thirst or there is an intense and constant thirst for large quantities of water. The stools are large and dry and have the appearance of being burnt.

Pulsatilla should be studied in cases that are brought on by the use of ice cream, fruits or rich pastry. The tongue is white or yellow and there is no appetite and no thirst, even if the mouth is dry and parched. There is a bitter taste in the mouth and the sides of the tongue feel scalded. The patient has an aversion to fats, milk, butter, meat, and hot foods, and is always aggravated by fat foods and by confinement in close warm rooms.

Ipecacuanha is indicated when there is a constant nausea, easy vomiting, constant eructation, and accumulations of saliva in the mouth. The vomiting gives no relief. The tongue is clear or slightly coated. There is a sensation as though the stomach were relaxed and hanging down, and clutching, squeezing, griping pains as if each finger of a hand were pressing sharply into the intestines. These symptoms are worse from motion.

Arsenicum album is indicated in acute gastric catarrh, when there is violent vomiting of everything ingested. There are severe burning pains referred to the stomach. The stomach is sensitive and sore, and the patient is greatly prostrated. The gastritis may terminate in ulceration.

Hydrastis Canadensis.—This remedy should be re-

membered in acute attacks, especially of beer drinkers, when there is loss of appetite with sour eructations. There is a yellow coating in the center of the tongue, while the tip and sides are clean. The patient complains of lassitude, malaise and depression of spirits. The liver is enlarged and sensitive, and there is slight jaundice. The bowels are usually constipated.

Antimonium crudum should be remembered when the attack has been produced by overeating. The stomach is weak, and digestion is easily disturbed. There is a thick, milky-white coating on the tongue. The trouble is aggravated by bread, pastry, acids, especially vinegar, sour or bad wine, from hot weather, overeating, and often cold bathing.

Phosphorus.—This remedy should be remembered when the patient vomits as soon as food enters the stomach. He craves cold food and cold drinks, which relieve momentarily, but are vomited as soon as they become warm in the stomach. There is often a weak, all-gone sensation in the stomach at 11 A. M., which extends to the bowels.

CHRONIC GASTRITIS.

Synonyms.—Chronic gastric catarrh. Chronic dyspepsia.

Definition.—This is a chronic catarrhal condition of the mucous membrane of the stomach, which may extend to the deeper coats, and is associated with an increased quantity of mucus, qualitative and quantitative changes in the gastric juice, and deficient motility of the stomach.

Etiology.—This is dependent upon eating and swallowing partially cooked or masticated foods, and especially food that produces fermentation and putrefaction, the free use of alcohol, acid foods, ice cold waters and iced drinks of various forms.

It is associated with gastric ulcer, dilatation and carcinoma of the stomach, Bright's disease, pernicious anemia, cirrhosis of the liver, chronic heart disease and pulmonary disease, gout, diabetes and nephritis.

Pathology.—The appearance of the mucous membrane varies with the type of the case. In mild cases the surface is covered with a mucous exudate, is irregular and granular, and may be of a grayish color, but if passive congestion was present before the development of the gastritis, it is a slate color. A mucous degeneration of the cylindrical epithelium of the tubules and desquamation of the secretory epithelium in the glands of the fundus takes place. The glands are usually dilated and filled with mucous exudate and desquamated cells. The inter-glandular tissue and the submucous coat is infiltrated and thickened by the formation of new connective tissue. The blood-vessels are dilated and their walls thickened and quantities of mucus are present in the stomach.

As the disease advances the glands undergo progressive atrophy, the epithelium disappears and the lumen of the gland becomes less distinct. This is dependent upon a fibrous overgrowth of the inter-glandular tissue. Owing to the contraction of the new connective tissue there are polypoid elevations

of mucous membrane. The glandular elements of these parts may undergo proliferation and cystic distension, or the mucous membrane may be thickened. The term hypertrophic gastritis is applied to these changes.

In the other cases the surface becomes smooth and thinned, due to the pressure atrophy upon the glands. The sclerosis may be so extensive that the thickness of the walls of the organ is greatly increased, while its size is diminished. The term interstitial gastritis is applied to such cases. As a result of these changes the functions of the stomach are disturbed, and may consist of an abnormal secretion of the gastric glands, and an alteration of the motor powers of the stomach, and an altered condition of the nervous mechanism.

Symptoms.—These vary with the stage of the disease and the disturbance of the functions of the stomach. There is frequently a sensation of gastric fulness after eating which may be accompanied by nausea and vomiting, eructation of sour gases, and palpitation. The tongue is moist and has a grayish-white fur, while its tip and margin are red. Pressure over the epigastric region elicits pain. Pain is also complained of after swallowing food. There is a gradual loss of weight and secondary anemia with the advancement of the disease. The appetite is variable and at times there is a craving for certain kinds of food. There are burning eructations of gas and of bitter sour fluid. The bowels are obstinately constipated. Headache, mental depression, melancholia and irritability are present, and cough often

accompanies the disease. The amount of hydrochloric acid secreted is reduced and may be absent, interfering with the digestion of proteids. Pepsin and the curdling ferment, while rarely absent, may be greatly reduced. There is a large amount of mucus in the stomach.

The motor power of the stomach is decreased as the disease progresses so that the food is retained hours longer than it should be, resulting in a hyperacidity of the contents, together with fermentation and decomposition. Dilation of the stomach gradually follows and in turn increases the motor insufficiency of the stomach.

The disturbance of the nervous mechanism of the stomach is manifested in a variety of ways, as irritability of the mucosa; in other cases there is a sensation of weight or pain, while in others the appetite is capricious. The general metabolism is interfered with and emaciation results.

Examination of the gastric contents following the administration of a test meal, shows large quantities of mucus, and the hydrochloric acid diminished, it may be absent, though occasionally it is present in normal quantities. If there is a large quantity of mucus, lactic acid is usually present.

Diagnosis.—This is based upon the gradual onset, the distress after eating, and the examination of the stomach contents. If present as an indirect symptom of a chronic disease of the lungs, heart, kidney or liver, this should be borne in mind.

It should be differentiated from cancer of the stomach and gastric neurosis.

CHRONIC GASTRITIS.

1. There is no palpable tumor.
2. Of long duration, but no cachexia.
3. Vomited material does not contain coffee-ground material.
4. Occurs at any period of life.
5. There is usually some hydrochloric acid.

CHRONIC GASTRITIS.

1. The symptoms are quite uniform and persistent.
2. An excess of eating and drinking and the ingestion of indigestible food invariably increases the distress of the patient.
3. The examination of the stomach contents shows evidences of chronic gastritis.

CARCINOMA OF THE STOMACH.

1. There may be a palpable tumor.
2. Duration limited to about eighteen months with a cancer cachexia.
3. Contains coffee-ground material.
4. Appears after forty.
5. This is usually absent.

GASTRIC NEUROSIS.

1. The symptoms are neither uniform nor persistent.
2. The relation between the diet and the symptoms is not so apparent. Foods that are indigestible may be well borne one day and cause distress the next, and a digestible diet may also cause much distress.
3. Does not show findings of gastritis.

Prognosis.—In the uncomplicated cases, this is usually favorable, but it is unfavorable if secondary to chronic diseases of the heart, liver, kidneys, and lungs. The degree of the structural change should be considered in each case, whether it is in the stage of simple gastritis, chronic mucous gastritis, or that of atrophy.

Treatment.—This depends upon the period at which the patient comes under observation. If it is a primary chronic gastric catarrh, and the patient

will coöperate, much can be accomplished. If it is a case of secondary chronic gastric catarrh, dependent upon changes in the lungs, heart, liver or kidneys or upon diabetes, gout, tuberculosis, chronic alcoholism, morphine, retention of the stomach contents, gastric cancer or ulcer, the task is more difficult, while the management is the correction of the original disease.

In those cases that are dependent upon the diet, it should be regulated. The condition of the teeth should be inquired into, and if not sound, they should be put in good condition. The subject of mastication and whether sufficient time is taken for meals should be considered. The food should be masticated slowly and thoroughly. The mind should be at rest from business cares, for when the mind is troubled during meal time the patient soon has both gastric and cerebral indigestion. The meals should be taken at regular intervals and the amount of food should be regulated, as the taking of too large a quantity of food soon results in gastric atony and motor insufficiency. Too hot or too cold articles of food or drink should be avoided. Indigestible foods and incompatible mixtures of food should be avoided, alcoholic liquors and the inordinate use of tobacco, tea and coffee should be avoided. In each case the idiosyncrasies of the patient must be considered.

In many of these cases the relief of the patient depends wholly upon the correction of the diet, which should contain a sufficient quantity of albumin, fats and carbohydrates. The ratio of these should be approximately 50 gm. of fats, 100 gm. of albumen and

45 gm. of carbohydrates. In all these cases the symptoms of the patient should be considered. If constipation is present, such articles as fats, cream, oils and milk should be prescribed. If diarrhea is present boiled milk, mutton broth, cocoa, eggs and meat should be employed. If flatulence is complained of, the carbohydrates should be reduced so far as possible. The likes and dislikes of the patient should be considered. He should be weighed from time to time to ascertain his real physical condition.

Lavage.—This is of the greatest service in the simple, but more especially in the mucous variety of gastritis. In these cases, one-half of a drachm of the Bicarbonate of Soda is dissolved in a quart of warm boiled water which is passed into the stomach by means of the stomach tube. This is siphoned out with quantities of mucus, particles of partly digested food and in some cases putrifying masses will be brought up. This is followed at the same sitting by the introduction and withdrawal of one or two quarts of a one per cent. solution of common salt or a solution of Hydrastis Canadensis, twenty drops to the quart of water. If the last solution is passed into the stomach, half a pint is left.

This procedure is performed before breakfast, if possible, and is at first repeated every day, then every second day, and as improvement takes place, the intervals between the lavage are lengthened. Peroxide of Hydrogen may be employed, but it has no advantages over other agents. It should be ascertained if the patient is drinking sufficient water.

In many of these cases, especially if there is a degeneration of the heart or kidneys, an exclusive milk diet for two or three weeks will be of service. If such a diet is introduced it will require from two to two and a half or three quarts of milk during twenty-four hours. The amount given should depend upon the weight of the patient and the amount of exercise taken. Hot milk is best, but it may be taken cold. It may be diluted with soda water, or a slight amount of salt added. If the gastric atrophy is extensive and the mucus is abundant, the milk should be peptonized. If the gastritis is dependent on alcoholism it will be found that the thirst that is so annoying in many of these cases, will be relieved by diluting the milk with equal parts of Apollinaris and Vichy water. If the patient is weak, the milk may be given every two hours. The amount should be increased and the periods between feeding lengthened as improvement takes place. If the cream is not well borne it should be removed. Buttermilk or kumyss is well borne in many of these cases. For those patients who cannot take milk, it should be mixed with vichy or apollinaris water.

If the patient cannot take enough milk to maintain the strength, other articles of food as scraped meat should be employed. If solid foods are given, too much fluid should not be allowed, as it dilutes the small amount of gastric juice present so that it cannot digest solid foods. Broth and soups should not be allowed with the meal of which solid food forms a part. Alcohol and effervescing wines should not be

taken. A small amount of light wine, as hock or moselle, may be employed if the patient has been in the habit of taking wine.

For those with an excessive secretion of Hydrochloric acid, oysters, raw or stewed, are usually well borne, as is rare steak, lean roast beef and the white meat of chicken. These may be taken with dry toast or stale white bread without butter. Cream, butter, fats, oils, pork sausage, tough meats and the flesh of young animals should be omitted from the diet as well as rich gravies and highly seasoned sauces. Dried smoked beef, cut in thin slices, as well as lean boiled ham, lean smoked bacons, salt fish and shredded codfish well cooked are easily digested. Soft boiled eggs are well borne by some, while by others they are not.

Farinaceous and saccharine foods are not well taken care of, as they soon undergo butyric and lactic acid fermentation and produce sour eructations. As improvement goes on, a well prepared starchy food as corn starch, dry bread, toasted crackers, zwieback, bread crusts, arrow root, well cooked sago, ground rice, vermicelli and macaroni, may be introduced, but sugar in tea or coffee should be avoided.

Potatoes usually cause flatulence and sour eructations, but when allowed they should be baked. Cauliflower, cabbage, legumes and corn are seldom well borne. Fruit may be tried between meals, in the form of baked or stewed apples and stewed prunes, if not too sweet. Pastries, sweets of all kinds, hot bread, griddle cakes, fried food, pickles and strong condiments should be avoided.

Nux vomica.—This remedy is indicated in many of these cases in which patent medicines, purgatives and laxatives have been employed. The patient is drowsy during the evening, is restless during the last part of the night, and is worse during the morning. His tongue is furred, the breath is foul and he retches and vomits. The bowels are constipated and there is ineffectual urging to stool. The patient is irritable and peevish. In some cases it will be found that Strychnine acts better, especially if motor insufficiency is a prominent symptom.

Bryonia alba should be studied when there is an offensive, flat, bitter taste in the mouth. The tongue is coated white. There are sour bitter eructations with nausea and vomiting in the morning and after each meal. There is a sensation as of a stone in the stomach and this sensation is aggravated by motion. The digestive process is slow. The bowels are constipated, the stools are dry and dark brown as if burnt. The liver is sensitive to palpation.

Pulsatilla should be remembered in patients with a changeable, peevish disposition. They are easily moved to tears and laughter, and are of a silent temperament and are disgusted at everything. They complain of a headache from overloading the stomach with pastry, fats or ice cream. The digestion is slow, the foods ferment and as a result there are eructations and flatulence.

Hydrastis Canadensis.—This remedy is indicated in those cases that are characterized by a catarrhal condition of the mucous surfaces. There is loss of

appetite, constipation and soreness in the epigastric region. The patient complains of faintness and "goneness." There is retching and gagging and vomiting of mucus each morning.

Arsenicum album.—This remedy should be studied when characterized by restlessness, anxiety, thirst, and a sensation of burning in the epigastric region. In many of these cases in which this remedy is indicated there is a history of alcoholism that has produced gastric irritability and vomiting. In connection with this remedy *China ars.*, and *Arsenic iodide* should be studied.

Creosotum.—This remedy should be remembered when the food is retained in the stomach and is then vomited unchanged, showing that digestion has practically ceased. It is especially useful when tuberculosis is present.

Sepia.—This remedy should be remembered in neurotic women who suffer from uterine diseases. She complains of acid eructation, changeable appetite and a desire for such articles of diet as will act as stimulants. She complains of a sensation of burning in the epigastric region following meals which may simulate gastralgia. The urine has a putrid odor and contains a large amount of urates.

Argentum nitricum should be studied in cases characterized by excessive flatulency. There is belching after each meal, with distension of the stomach as though it would burst. The belching is difficult, finally the air rushes out with great violence. There is vomiting of a large quantity of ropy mucus.

Acidum carbolicum is a neglected remedy. It is indicated in cases characterized by an excessive flatulence, acid eructations, nausea and vomiting shortly after eating. If vomiting does not take place there are pains in the stomach and abdomen during digestion. The tongue is red, thick and slightly coated at the base. The patient complains of a sensation of goneness after meals.

Bismuth subnitrate should be remembered in cases characterized by a sweetish metallic taste in the mouth. There is thirst for cold drinks, but the cold water taken is immediately vomited. There is a sensation of burning in the stomach after meals. This is confined to a small circumscribed spot. The patient desires to bend backward. There is nausea, flatulence and eructation of an offensive odor. The bowels may be constipated or there may be an alternate constipation and diarrhea.

Bismuth subgallate.—This remedy should be studied in those cases characterized by fermentation, slow digestion and an excess of gas and flatulence.

Carbo vegetabilis.—This remedy is indicated in weak, debilitated patients who complain of great flatulence. The simplest food disagrees, everything seems to turn to gas. The abdomen is distended and there is a rumbling of gas and the passage of much flatus with foul odor. There is soreness and crampy pain in the epigastrium. There is oppressed breathing and palpitation of the heart in consequence of the fulness and oppression.

Lycopodium clavatum should be studied in uric

acid subjects who complain of sudden repletion when eating so that they are unable to eat enough to satisfy their hunger, nor as much as the system needs. There is great fermentation in the abdomen with rumbling and cracking noises. There is colic and discharge of much flatus which is worse from 4 to 8 P. M.

TOXIC GASTRITIS.

Definition.—This is a form of gastritis dependent upon the swallowing of toxic agents.

Etiology.—The following chemicals have a direct irritating or caustic effect on the gastric mucous membrane: Mineral acids, Carbolic acid, the Caustic alkalies, Alcohol, Phosphorus, Corrosive sublimate, Arsenic, Potassium chlorate, etc.

Pathology.—The inflammation is of an acute variety. There are large areas of necrosis and in some cases large ulcers appear when the necrotic tissue separates and hemorrhage may result. The healing of these ulcers results in extensive cicatrix and causes deformities which may result in stricture of the pylorus.

Symptoms develop promptly following the ingestion of toxic material. The mouth, pharynx and esophagus are involved in the process, which renders deglutition painful. The pain is felt in the mouth, pharynx, esophagus, under the sternum and in the epigastrium; it appears quickly and is severe and burning in character. Vomiting soon follows. The vomited material consists of particles of food, mixed

with mucus and blood, and frequently shreds of the mucous membrane of the stomach. The epigastric region may show tympany or retraction. Palpation over the region causes pain. The face is pallid and covered with a cold sweat, and shows evidence of suffering. The pulse is small and fast. The extremities are cold and cyanotic. Perforation of the stomach and peritonitis may result. In severe cases, death will ensue in from an hour to a day or two. If recovery takes place, it is slow and frequently results in a stenosis of the esophagus or pylorus.

Diagnosis.—This is based upon the history of the case, including the evidences of inflammation upon the lips, tongue or pharynx, the acute onset and the general symptoms.

Prognosis.—Toxic gastritis is always a serious condition, but depends upon the character of the poison and the amount swallowed.

Treatment.—The first indication is to get rid of the poison promptly and administer the proper antidote. If there is no vomiting, the stomach should be washed out at once. The stomach tube should be employed with caution. Emetics which act promptly must be used. Diluents are of service. Heart tonics as Strychnine and Alcohol are beneficial if there are indications of failing compensation. The stomach should be given rest and rectal alimentation employed after the acute stage is passed.

PHLEGMONOUS GASTRITIS.

Synonyms.—Purulent or suppurative gastritis.

Etiology.—This occurs secondarily to an infective process, as pyemia, puerperal fever, small-pox, typhoid fever. It may be associated with carcinoma and suppurative processes of the pharynx or esophagus. It may be caused by corrosive acids, alkalies or indulgence in alcohol. It appears as a diffuse, purulent infiltration of the stomach walls or as a circumscribed, localized abscess.

Symptoms.—These are the symptoms of the septic process plus those of the local manifestation. The fever is high, there is great prostration, delirium, jaundice, localized epigastric pain, a dry, heavily furred tongue, vomiting, meteorism, diarrhea, and coma which usually precedes death.

Diagnosis.—This is usually impossible in the presence of the original disease.

Prognosis.—Nearly all cases die.

Treatment.—Little can usually be done apart from what is undertaken for the general condition. If the phlegmonous gastritis should become the leading condition, such remedies as *Carbolic acid*, *Mercurius corrosivus*, *Arsenicum*, *Echinacea* and *Lachesis* should be studied. Rectal alimentation must be resorted to in some cases.

MYCOTIC GASTRITIS.

The stomach has been infected with certain fungi, especially those of thrush, anthrax and yeast. The acid of the normal gastric secretion will destroy them. In those cases in which they have developed, the acidity was below normal.

INFECTIVE GASTRITIS.

The stomach may be the seat of specific lesions during the course of certain infective diseases, such as diphtheria, tuberculosis, small-pox, typhoid fever and syphilis.

In these cases the condition is secondary to a general infection. The prognosis is grave and the treatment is that of the primary disease.

GASTRIC MYASTHENIA.

Synonyms.—Gastric atony. Dilatation of the stomach. Gastrectasis.

Definition.—This is a muscular weakness of the stomach which results in a diminution of its motility, in dilatation and in inability to empty itself within a normal period.

Etiology.—Gastric myasthenia may be congenital. Certain individuals are born with a deficient amount of muscular tissue in the walls of the gastro-intestinal tract. There is no doubt but that some of these cases are due to the habitual overdistension of the stomach during childhood. It may also result from a progressive pyloric stenosis. This demands an increasing power on the part of the stomach, the wall of which, although hypertrophied, soon is unable to pass the food through the pylorus before the next meal is eaten. Food is retained in the stomach, distension results and atony is produced. Defective nutrition of the stomach walls, as is observed following prolonged acute diseases like typhoid fever, and the ad-

ministration of a large meal often results in an atonic dilation of the stomach. Another cause is a diseased condition of the stomach walls, as chronic gastritis or malignant disease of the stomach which results in atony of its walls.

Chronic passive congestion of the stomach, the result of disease of the heart or liver retarding the circulation through the stomach, results in a weakness of its muscular layers and lessens its motor sufficiency.

General neurasthenia is at times associated with atony of the stomach. In some cases this disease is but a part of a breaking down or degeneration of the whole digestive system as is observed in gastropptosis, or in the symptom complex known as Glenard's disease.

Pathology.—The capacity of the stomach is increased from about one quart to three or four times this amount. Its lower border is displaced downward. There is an atrophy of its coats and a thinning of its walls. In a small percentage of cases there is an increase of the connective tissue.

Symptoms.—The symptoms vary with the degree of the myasthenia. During the first stage there is a loss of contractility, and the stomach under favorable circumstances is able to empty itself before the next meal, but frequently there is an inability to expel the gas that forms in the stomach, and it often assists in producing dilatation. There may be no symptoms complained of, but usually the patient complains of a sensation of fulness after meals, eructation of gas

and an inability to sustain a prolonged mental or bodily exertion, and the time approaches when the stomach is just able to empty itself before the next meal. Any overexertion or exhaustion results in this particular defect and an attack of indigestion. In many of these cases of temporary gastric insufficiency, faintness is complained of and often becomes an annoying symptom.

In due time the stomach is no longer able to empty itself within six hours, and the second stage, or the stage of stagnation, is said to have been reached. Fermentation now occurs, its severity depending upon the character of the food and the condition of the mouth, as *pyorrhea alveolaris*; septic stumps of teeth always favor such a condition. As the second stage advances, and the stomach becomes weaker and more dilated, it does not empty itself. There is now more or less regurgitation of food having an acid or bitter taste. And in addition to the symptoms of the first stage, there is a group of symptoms dependent upon the absorption of toxines from the alimentary canal. Prominent among this are headache, insomnia, mental depression, vertigo, loss of appetite, nausea and vomiting, slowness of the heart's action with reduplication of the second sound at the apex; certain skin eruptions, especially erythema and urticaria, are liable to appear, with various nervous phenomena, as numbness, tingling, sensation of crawling and other parathesiæ. The patient becomes anemic and symptoms of muco-colitis and intestinal indigestion appear.

While the intestinal tract remains in a normal condition, the greater part of the digestive process takes place there and a nitrogenous equilibrium is maintained. When this is no longer the case a progressive emaciation results. Gradually the second stage passes to the third when the stomach is never able to empty itself completely, but contains at all times a residue of fermenting food, and any fresh food that enters it at once commences to ferment. Owing to the reduced quantity of water that leaves the stomach, constipation and a diminution in the quantity of urine result. The emaciation gradually increases owing to the fermented disorganized condition of the stomach contents as it passes from the stomach, and as a result actual starvation takes place. The irritating and putrefying mass that passes the pylorus gives rise to flatulence and localized pain. Constipation, due to lack of liquids and localized spasm of the large intestine, becomes more pronounced and toxemia from absorption is apparent, while mucous colitis is often present. As the case advances and a residue of each meal remains in the stomach, pain and nausea follow. These are followed by vomiting, which at first occurs only every four or five days, but gradually becomes more common until it is continuous, and the patient gradually dies of starvation.

Diagnosis.—Motor insufficiency is determined by the examination of the stomach contents, the quality, the constitution and the character of the residue after the test meal. If this is carefully undertaken it is impossible to confuse it with any other disease.

The amount of dilatation can be easily determined by inflating the stomach.

The condition that should be distinguished from gastric myasthenia is megalogastria in which the stomach is enlarged but the motor power is sufficient. Gastropstosis should be distinguished by the fact that the lesser curvature of the stomach is also lowered and the stomach is not enlarged but occupies a lower plane in the abdomen.

Prognosis.—Motor insufficiency of moderate degree may be cured. This depends upon the care with which the diet is selected and the faithfulness with which the physician's directions are carried out. The improved condition of the patient's health apart from the lesion, and the earlier that energetic treatment is instituted, the better. Atonic forms of ectasia due to mechanical obstruction of the pylorus are not easily managed.

Treatment.—The first task is to correct anything that would in any way cause the condition to continue. All errors in diet should be corrected as well as hepatic congestion that results from cardiac or hepatic disease. Recurrent attacks of spasm of the pylorus, so frequently associated with hyperchlorhydria, must be relieved before much can be hoped for in restoring the loss of power of the muscles where gastric myasthenia, hyperchlorhydria and byloric spasm are associated. A most heroic effort is required to overcome the complication. This consists in a prolonged rest in bed, rectal feeding, lavage of the stomach and a gradually improving scale of diet.

Gastroptosis which is so common in these cases must be corrected. This requires mechanical support. Of the mechanical supports, the best is that made by the zinc oxide adhesive plaster. The belt used by some slips upwards and must be held drawn by straps passing between the legs over the perineum. The use of the supporter is assisted if the patient lies down at the close of the digestive period upon a couch which is raised two inches at the foot. Gastritis should be avoided so far as possible by means of a diet that is proper for the atony, and the use of lavage, and the care of the mouth and teeth.

During the first stage the contractility of the stomach is impaired, yet it is able to empty itself under ordinary circumstances within six hours. The meals at this time should be moderate in quantity and consist of such food as is digested ordinarily in three hours. Little or no liquid should be taken with the meal, but at its close effervescing water, hot drinks or champagne should be taken. These patients should avoid drinking large quantities of hot water, as it not only assists in producing this disease but also assists in its perpetuation. Five hours at least should intervene between meals, during this stage, as there is no residue of food in the stomach, there is no putrefaction, and boiled eggs, sugar, roast beef, or boiled meats may be allowed. All food must be thoroughly masticated. Bread should be cut in thin slices and well toasted so that the starch granules may be broken, and the lactic acid germs that are usually in the center of the loaf may be de-

stroyed. When toast cannot be obtained, thin, well baked rolls are to be preferred.

As the second period approaches when the stomach is unable to empty itself within six hours, but does so during the night, the diet must be more carefully regulated, as there is now a real stagnation of the food in the stomach. The presence of food in the stomach induces a constant secretion of the gastric juice which increases the gastric embarrassment. During this period the amount of food taken at one time should be less than normal. If the food is not digested in the stomach it should be prepared in such a way that it is easily passed through the pylorus. The relative proportions of proteids and farinaceous foods should depend upon the ability of the stomach to digest these foods. If hydrochloric acid is in the excess, the farinaceous diet should be limited or predigested. When hydrochloric acid and pepsin are defective, farinaceous food should dominate in the diet. Alcohol should be avoided, as it causes a pouring out of fluids into the stomach and thus favors dilatation.

In the third stage of gastric myasthenia there is a residue of food continually in the stomach, as it is now no longer able to empty itself. The subject of diet is now a most important one and taxes the ingenuity of the physician and the perseverance of the patient.

At first it is advisable to allow the stomach to have perfect rest and to nourish the patient by nutritive enemata. During this period the patient must lie in bed in order to limit the waste and to place the stom-

ach in the best position. After a few days, and while these adjuvants are being carried out, small quantities of liquid food should be given carefully. Meat juices, jellies, gruels and thickened soups are permissible. As the strength of the stomach improves the quantity and consistency of the food should be increased, giving semisolids, porridges and paste until finally a solid diet can be borne. As the stomach becomes able to manage a more substantial diet the nutritive enemata are reduced. In all these cases the dietetic prescription should be most carefully adjusted to the capabilities of the stomach and all guess work eliminated.

In order to carry out these indications of the diet, the physician should remember that a certain amount of food is required to enable the body to exist and replace the waste. This can be quite definitely reckoned by estimating the number of calories that are needed to develop the degree of energy that is required to maintain the body weight. A man weighing 150 to 160 pounds requires from 3,000 to 3,500 calories to maintain a metabolic equilibrium. An article of food that is suitable to one individual may not agree with another, and so it is by trial that we arrive at the diet that affords the largest amount of nutrition. The composition of the gastric juices must be taken into consideration in determining the diet. If it is found that hydrochloric acid is in excess, and that farinaceous food is badly managed in the stomach a larger percentage of proteids or diastase should be added. If upon examination the hydro-

chloric acid and ferments are found to be reduced, the amount of meat must be reduced or it should be extremely comminuted, or pepsin or papain administered that the food may pass the pylorus quickly.

Lavage.—This should not be employed during the first stage when the stomach empties itself thoroughly, except when complicated with hyperchlorhydria, chronic gastritis, or hypersecretion. During the second stage it should not be employed unless there are distinct evidences of fermentation. When it is employed for this purpose it should be before breakfast when the stomach has had the longest possible time to empty itself as well as to utilize all the food possible. If hypersecretion be present the best result will be obtained from washing the stomach before the evening meal. During the third stage, when the stomach never empties itself thoroughly, fermentation is always present. If the fermentation is mild it will be sufficient to wash out the stomach before breakfast, three or four times during the week. If the fermentation is pronounced, a light meal should be administered at 7 P. M. and the stomach washed out four hours later, which allows the stomach to rest all night. If this is followed up for a short time the fermentation usually ceases and the morning lavage may again be resorted to. If the case is an advanced one and the fermentation is complicated with a continual hypersecretion and the retained food causes irritation, and a continual secretion of hydrochloric acid, it is usually necessary to wash the stomach before breakfast and again at night that it may re-

main empty all night. More than one pint of water should not be introduced at one time, otherwise the stomach may be injured, but this amount should be removed by siphon or aspiration before any more is introduced. The stomach should not be washed more frequently than is necessary, and as improvement takes place the number of lavages should be reduced.

Electricity is of service in these cases. The faradic current, either locally or by an intragastric electrode. The static insulation is also useful.

Massage is highly serviceable when properly applied by one who has made a study of the special technique of emptying the stomach by manipulation, but as applied by the ordinary masseur or masseuse it is useless. Vibration is of service when applied scientifically.

Remedies have but little influence over the condition. Those that appear to have the most influence are *Nux vomica*, *Strychnia*, *Hydrastis*, *Arsenicum*, *Graphites*, *Chamomilla*, *Antimonium crudum*.

ACUTE DILATATION OF THE STOMACH.

Etiology.—This condition is met with most frequently in those between the tenth and the fortieth years of age. A large percentage of the cases have followed operations in which a general anesthetic was employed. In a few cases it has followed an injury, while in others it has occurred during convalescence from severe or wasting disease. Errors in the diet and deformity of the spine have been associated in a few cases.

The mechanism of acute gastric dilatation has not been definitely determined. It has been looked upon as a paralytic condition, a disturbance of the nerve centers or nerve trunks, and a neuroparesis associated with spasms of the pylorus. There is no doubt but that in many cases it is dependent upon a mesenteric constriction; and that an incomplete obstruction of the duodenum at the root of the mesentery is responsible for cases of a more gradual dilatation of the stomach and duodenum.

Pathology.—In those cases on which a post mortem examination was held the most constant condition was the size of the stomach, which in some cases has reached even to the pubes. In the majority of the cases, the stomach is cylindrical in form and is bent into two unequal portions. The larger or cardiac portion extends nearly directly downward while the smaller and shorter portion extends upwards and to the right, producing a sharp bend in the lesser curvature.

In 69 autopsies the pylorus was obstructed in but three cases, one by a tumor, another by bands of the mesentery and the third by a kink due to adhesions. In one case the dilated stomach was mistaken for an immense pancreatic cyst and drainage was established.

In the majority of the cases the stomach walls were thinned and showed small hemorrhages in the mucous and submucous layers.

In two-thirds of the cases the duodenum was involved in the dilatation to its lower end, where it

passes behind the root of the mesentery, and in these cases was pinched between the tense mesentery and its contained superior mesenteric artery in front and the aorta and vertebral column behind. This condition was present in the majority of the cases. In a few cases there was kinking at the duodeno-jejunal junction. So far as has been noted the intestines below this point were collapsed and empty.

Symptoms.—Vomiting is the most common and the most important symptom. It is profuse, persistent, incessant and uncontrollable. The material vomited is of a thin, watery consistence, and varies in color. Pain is present in about fifty per cent. of the cases and is referred to the epigastrium, or umbilical region, and in the majority of cases is described as intense. Tenderness is recorded in a number of cases. Distension of the epigastrium and the region to the left and below the umbilicus is present in many cases.

In certain cases the symptoms are those of intestinal obstruction. Thirst is usually intense and a persistent hiccough has been noted. The urine is scanty; and a pronounced collapse is the most important symptom following the vomiting.

Diagnosis.—This condition is seldom recognized the first time it is met with. The sudden onset of a severe and continuous vomiting of large quantities of bilious non-fecal material is suggestive. The rapid emaciation and collapse, with an obstinate constipation, abdominal pain, tenderness, and distension are the points upon which the diagnosis is based. It

should be remembered that one or more of these symptoms may be absent. The demonstration of the enlarged stomach renders the diagnosis most positive. The presence of bile and pancreatic juice in the fluid taken from the stomach and the absence of fecal vomiting would indicate duodenal obstruction.

Prognosis.—Of the recorded cases nearly three-fourths have died. There is no doubt but that many cases have recovered that were neither recognized nor reported.

The duration of the symptoms in 75 per cent. of the fatal cases was less than five days. Of the cases that recovered, a few postoperative cases, the symptoms disappeared almost immediately, while in others they subsided slowly.

Treatment.—This depends upon the time at which treatment is undertaken. If the stomach has been greatly dilated and prostration and collapse is pronounced treatment is unsatisfactory. If, however, the disease has been recognized early the treatment in the majority of the cases is favorable.

Whatever the cause of the dilatation, the first task is a prompt and complete emptying of the stomach. With the conditions present this is not always a simple task. The stomach tube should reach the most distant and dependent part of the viscus so that all the contents may be removed. To this end it may be necessary that the patient assume different postures. The stomach should be emptied several times a day. No food or drink should be administered by the mouth. Nutrition should be maintained by rec-

tal feeding and the loss of fluid should be supplied by large saline enemata or by hypodermoclysis.

In those cases that are dependent upon duodenal obstruction, if it is but a kink, the mere emptying of the dilated and overloaded stomach and keeping it empty for a short time has been sufficient. In those cases where the obstruction is dependent upon a constriction of the duodenum by the root of the mesentery, the stomach should be emptied and the patient then changed from the back to the belly position. It may be necessary to have this position maintained for some time to give permanent relief. Surgical procedure has not been successful in this condition.

If the patient is greatly exhausted, stimulants should be administered and hot applications made to the extremities.

GASTRIC ULCER.

Synonyms.—Peptic ulcer, ulcer of the stomach, simple ulcer, round ulcer, perforating ulcer.

Definition.—This is a necrosis of the mucous lining of the wall of the stomach tending to spread through the coats and to perforate rather than to heal. It may be acute or chronic.

Etiology.—It is most common in persons between the ages of twenty and fifty, and is more frequent among women than men (3 to 1). In women it occurs most frequently in those from twenty to thirty years of age, and in men who are from forty to fifty. It is frequently associated with other diseases, as tuberculosis, portal obstruction, heart disease, ague,

syphilis and is quite common in chlorosis of young women. Ulcer may be associated with pyemia or septicemia and in these cases is often multiple. In these cases it is due to direct infection and embolism, as is probably the case when associated with abdominal burns. In many cases there is an increased acidity of the gastric juice. In a small percentage of cases there is a history of traumatism.

Pathology.—The acute ulcer is small and presents an appearance of having been punched out of the mucous membrane. The chronic ulcer is funnel-shaped, its apex extending towards the peritoneal covering, while its edges are thickened owing to an increase of the fibrous tissue of the stomach. Adhesions may be found between the stomach and surrounding organs. Acute ulcers occur most frequently about the pyloric orifice and the first part of the duodenum, 40 per cent. being upon the posterior surface of the stomach, 26 per cent. upon the lesser curvature, 15 per cent. at the pyloric office, 6 per cent. on the anterior surface, 11 per cent. in the greater curvature and 2 per cent. at the cardiac orifice.

The ulcer may cicatrize or perforate. When cicatrization takes place hour glass contraction of the stomach may result, but in other cases when the ulcer is situated near the pyloric or the esophageal orifice a stenosis may form. Perforation occurs as a result of muscular effort or by an acute ulcerative process. It frequently accompanies those ulcers that occur upon the anterior and posterior surface and on the lesser curvatures.

Gastric ulcers occur as the result of injury to the tissues, the invasion of bacteria and some interference with the circulation of blood to the part. Chronic ulcers are frequently due to thrombosis dependent upon chlorosis. If the tissues are abraded from any cause an ulcer is soon formed by the action of the gastric juices. The secretion of gastric juice may be normal or it may be increased and hyperchlorhydria may be present. In cases of pulmonary tuberculosis complicated with gastric ulcer there is often a diminished acidity of the stomach. Gastric myasthenia, muscular irritability that results in spasm, gastric dilation, and hour glass contraction may result.

Symptoms.—In some cases there are no symptoms (latent gastric ulcer). Death may result from a severe gastric hemorrhage and perforation may occur without any symptoms of gastric ulcer being present. More frequently, however, there is a localized pain, with tenderness, vomiting and hemorrhages. The pain is the most distinct symptom, beginning as a vague sensation of pressure or discomfort, with occasional drawing pains which soon become constant, and in time changing to a gnawing, sickening sensation which is distinct from nausea. Before long it is noticed that this is worse after eating and is continuous as long as food remains in the stomach. Pressure intensifies the soreness, and this is particularly noticeable over a circumscribed area, which is usually located in the center of the epigastrium or behind the ensiform cartilage. Following the appearance of this epigastric pain there soon appears a severe gnaw-

ing burning pain referred to the left of the lower dorsal or upper lumbar vertebræ. In some cases this pain extends to the scapulæ or to the coccyx. If the ulcer is in the posterior wall of the stomach, the dorsal pain may be the first complained of. Apart from this continuous distress severe paroxysms of boring, lancinating gastralgic pains may appear suddenly, induced by irritating food, either hot or cold, or the direct action of hyper-acid gastric juice. Anger, fatigue or the increased nervous and vascular tension preceding menstruation may be the exciting cause. During the height of the gastralgic pain, vomiting often occurs and affords temporary relief, and in some cases it is complete.

Vomiting is present sooner or later in the majority of all cases, but it may be replaced by acid regurgitation. The vomited material consists at first of food that is hyperacid, but later it is mixed with bile. While the vomiting of a highly acid material at the close of a gastralgic attack is strongly indicative of a gastric ulcer, yet hematemesis is the only vomitus which, when associated with the characteristic pain and tenderness, is a positive sign of gastric ulcer. Melena may complete the syndrome when hematemesis is absent. But the absence of both does not contraindicate gastric ulcer. The stools should be examined carefully in all suspected cases, as small bleeding does not induce vomiting, but the blood may be discovered in the stool. The hemorrhage may be so profuse and pour out so quickly that syncope results and death supervenes.

Perforation may occur without any marked premonitory symptoms. A sudden and severe pain is usually the first indication of perforation.

Diagnosis.—This is based upon the local pain and sensitiveness to pressure, vomiting and hematemesis. The pain is intense, boring, gnawing and burning in character. There is a localized sensitiveness complained of a little below and to the right of the median line. There is also a pain that appears somewhat later to the left of the eighth or ninth dorsal vertebra. The gastric pain is aggravated by the taking of food and continues till the completion of gastric digestion, or is relieved by vomiting. The hematemesis usually consists of reddish-brown clotted masses, it comes at infrequent intervals, but tarry stools are often present.

GASTRIC ULCER.

1. The pain is localized, severe and is aggravated by taking food into the stomach.
2. Hematemesis is present.
3. Vomiting is characteristic.

GASTRIC ULCER.

1. Pain is localized and is aggravated at once from the taking of food.
2. The pain is aggravated by the taking of any form of food.

GASTRIC ULCER.

1. Seldom relief of the pain from eating.

CHRONIC GASTRITIS.

1. This is diffused, is less severe and is relieved by a correction of the diet.
2. There is no hemorrhage from the stomach.
3. Seldom any vomiting.

HYPERCHLORHYDRIA.

1. Pain is of a burning character and comes two or three hours after taking food.
2. Is relieved by the use of nitrogenous food and fats.

GASTRALGIA.

1. Relief of the pain from eating is frequent.

GASTRIC ULCER.

2. Pressure usually aggravates the pain.
3. The pain has a peculiar sickening intensity.
4. The patient is chloro-anemic and frequently gives a history of dyspepsia.
5. The cessation of the pain leaves the patient suffering with dyspepsia and symptoms of gastric catarrh.
6. The nutrition is seriously affected.

GASTRALGIA.

2. Pressure relieves the pain.
3. The pain lacks this sickening intensity.
4. The patient shows a hysteric, neuralgic and neurotic tendency.
5. The cessation of the attack gives the patient rest.
6. Nutrition may be normal.

GASTRIC ULCER.

1. Pain usually appears slowly.
2. The pain is referred to the epigastric region.
3. The liver and gall-bladder are normal and there is no jaundice.

GALL-STONE COLIC.

1. Pain appears suddenly.
2. The pain is referred to the region of the gall-bladder.
3. The liver and gall-bladder may be enlarged and there may be jaundice.

Prognosis.—Under suitable dietetic and hygienic treatment the prognosis is favorable providing the case comes under observation early in its history. In latent cases in which the first indication of its presence is a profuse hematemesis or perforation, the prognosis is not so favorable. Following the healing of the ulcer there may be a cicatricial narrowing of the pylorus which in time results in a dilatation of the stomach, and occasionally a filament of a nerve may be included in the cicatrix and a persistent gastralgia result.

Treatment.—As these cases of gastric ulcer cannot be foretold, it is impossible to do much in the way of

prophylactic treatment, but owing to their deleterious influences, gastric hyperacidity, anemia, and chlorosis should be corrected as quickly as possible. The stomach should be given rest when the diagnosis is made, and to obtain this it is advisable to withhold all food for five or six days. If found necessary, rectal feeding may be instituted, but this will stimulate gastric secretion, one of the things that is injurious. In cases attended with severe gastric pain, vomiting and repeated hemorrhages whenever food is taken rectal feeding may be instituted till these have ceased.

If the rectal feeding is determined upon, the lower bowel should be thoroughly washed out with warm, soapy water. When the water has all been expelled, the nutritive clysma should be carried well up into the colon by means of a soft rubber catheter attached to an irrigating bag raised about three feet. During this time, and for an hour following it, the patient should lie upon the left side with the legs drawn up, the right one thrown over the left. The temperature of the enema should be near to that of the body, and it should not consist of more than 250 c.c. Enemata of various composition are used, the following being simple and easily obtained. Milk 250 c.c., yolk of two eggs, two tablespoonfuls of claret and a little salt. Predigested albumens often irritate the bowel and are not more readily digested than other albumens. Sugars are rapidly absorbed from the intestines, yet they undergo decomposition and lead to fermentation and distention. Dextrose is the only sugar of which this is not true. When eggs are used in the enema,

the bowels should be thoroughly irrigated an hour or two later, otherwise the egg albumen will undergo decomposition in the rectum and toxic bodies that are highly irritating may be formed.

If food can be taken by the stomach it should be in the form of liquids; milk alone, or mixed with strained barley, oat meal, or rice water should be given every hour, about five ounces at a time; it should be warm. In some cases, however, if given cold it appears to agree better and should be sipped slowly. During the second week the quantity of milk should be increased to ten ounces, and the intervals between lengthened to two hours. During the third week crackers, bouillon and a raw egg beaten up in the milk may be allowed once or twice a day. During the fourth week there may be added, well toasted bread, butter, calves' brains, sweetbreads, broiled lamb chops, baked potatoes, boiled macaroni with butter after it has cooled and eggs in any form except fried or scrambled. If there is no trouble with this diet, one article of diet after another may be continuously added. The diet should be a highly nutritious one. The patient should be kept under observation for at least one year after the ulcers are supposed to be healed. The condition of the blood should be the guide in the prognosis, not the sensation in the stomach, nor feeling of the patient.

In case of severe hemorrhage the patient should remain quiet and swallow small pieces of ice frequently or take iced milk, or ice cream, and an ice bag should be applied over the stomach. For this

condition *Ipecacuanha*, *Hamamelis*, *Hydrastis hydrochlorate* and *Ergotine* should be studied. In some cases a transfusion of a salt solution may be necessary to save the patient's life following a severe hemorrhage. If vomiting is persistent, all food by the mouth should be stopped. Lavage will afford relief, but it is a dangerous procedure.

Perforation of the stomach wall demands an immediate laparotomy.

Uranium nitricum.—Extensive experience with this remedy has proved that it has the power of curing ulceration of the pyloric end of the stomach and the upper portion of the duodenum. When it is indicated the patient complains of great despondency, and is ill-tempered. There are boring pains in the pyloric region, with intermittent attacks of pain and distress in the epigastric region, with acid eructations and recurrent hematemesis.

Argentum nitricum is indicated when the patient complains of a severe pain localized just below the xiphoid cartilage, extending to the back. The pain also radiates from the epigastrium to the shoulder, chest and abdomen. There is usually fermentation, and an examination of the blood shows a condition of chlorosis to be present.

Arsenicum album.—When this remedy is indicated, the patient complains of great anxiety and gnawing pain that burns like fire in the stomach, which is sensitive to pressure. Neither food nor drink is retained in the stomach, and drinking is followed immediately by vomiting.

Mercurius corrosivus should be remembered when the epigastric region is distended and is extremely sensitive to the slightest pressure, and there are sharp darting pains through it.

Hydrastis Canadensis is of service when there is great soreness and burning pain referred to the stomach. The patient complains of a sensation of faintness and goneness in the epigastrium, with hyperacidity and nausea, vomiting and empty eructation. There are evidences of a catarrhal condition of the stomach with jaundice and torpidity of the liver.

Bismuth subnitrate is indicated when the patient complains of a sensation of pressure as from a load in one spot, and a pressing, burning sensation extending from the stomach through to the spine. There is continuous vomiting which cold drinks relieve for a time, but the stomach becomes filled with fluid and it is then vomited.

Kali bichromicum.—When this remedy is indicated, there is acidity of the stomach with a sensation of pressure and burning, with vomiting of bile, and of a pinkish, glairy, tenacious fluid. The sensation of pressure and burning is aggravated by the taking of food.

Phosphorus is indicated when the patient complains of a sensation of burning heat in the stomach extending to the back, and a faint empty feeling referred to the stomach and bowels. The extremities are cold, and there is vomiting after taking food, and vomiting of water that has been taken a few minutes before.

HEMATEMESIS.

Synonym.—Gastric Hemorrhage, Gastrorrhagia.

Etiology.—This is a symptom present in various gastric conditions as cancer, ulcer, active and passive congestion, also in obstruction of the portal circulation and during the course of atrophic cirrhosis of the liver, mechanical injuries and the local effects of acids and alkalies. It may be due to constitutional diseases as hemophilia, pernicious anemia, purpura hemorrhagica, yellow fever, small-pox and acute yellow atrophy. An aneurysm may rupture into the stomach and blood be vomited, or blood may be swallowed and then vomited.

Pathology.—The bleeding point may be a small petechia, as is met with in active and passive congestion. These are also present in acute inflammation as well as the various infectious and constitutional diseases. Larger hemorrhages result from severe passive congestion in heart diseases and cirrhosis of the liver than from carcinoma or gastric ulcers. When a large vessel has been eroded, the blood escapes gradually and may be vomited in a semi-digested condition (coffee ground vomit) indicative of carcinoma.

Symptoms.—If the amount of blood lost is copious, there is faintness, followed by syncope, coldness of the surface of the body and extremities, sweating, subnormal temperature, sighing respirations and small, weak pulse. Sooner or later there is vomiting

of blood which is bright red if it has remained but a short time in the stomach, while if it has remained sufficiently long to be partially digested it presents the appearance of coffee-grounds.

Diagnosis.—In these cases the first question is to decide if the stomach is the seat of the hemorrhage, and if so, what particular lesion is present. It is seldom that the vomiting of swallowed blood presents any difficulty of diagnosis, as epistaxis and fracture of the base of the skull is usually easily recognized. If the blood swallowed comes from the lungs the history of the continual bringing up of small quantities of blood by coughing, as well as muco-pus containing tubercle bacilli, is diagnostic.

In the case of a stomach lesion the blood is vomited upon one or more occasions. It is not mixed with sputum, there is no cough, night sweat, emaciation, pyrexia, tubercle bacilli or other indication of tuberculosis. In those cases that are dependent upon portal obstruction, there are evidences of ascites and hepatic engorgement. If there is a slight enlargement of the liver, but a history of alcoholism is present, it is probable that portal congestion is the cause of the hematemesis. The physical evidences of valvular disease are usually easily recognized; there is usually some evidence of enlargement and tenderness of the liver. While there is usually but little difficulty in distinguishing the hematemesis of gastric ulcer from that attending carcinoma, yet in some cases of the former the blood presents the appearance of coffee grounds, and in the latter it may be in

clots, yet the general symptoms should distinguish the condition.

HEMATEMESIS.

1. Blood usually dark, clotted, of coffee-ground appearance, and acid reaction.
2. It is raised by vomiting.
3. Physical signs usually show evidences of diseases of the stomach.
4. Stools may be tarry.

HEMOPTYSIS.

1. Blood is bright red, frothy and alkaline.
2. It is raised by coughing.
3. Physical signs usually show pulmonary evidence of pulmonary disease.
4. The stools are normal.

Prognosis.—In gastric ulcer, while patients may die from repeated hemorrhages and even from one hemorrhage, especially if the ulcer is of long duration and the patient is exhausted from lack of food and the severity of the pain, yet they usually survive. In cases dependent upon cancer, the hematemesis is frequently fatal; while in those cases in which it is dependent upon chronic renal disease or portal obstruction, it is rarely fatal and is more frequently beneficial as it relieves the embarrassed circulation.

Treatment.—The first indication is absolute rest in bed, in a cool room with light bed coverings. The mental condition of the patient should be quieted. If the hemorrhage is still active, cold applications over the epigastrium are to be preferred to hot ones. Small pieces of ice may be allowed in the mouth, but all food should be forbidden. Food should not be administered by the mouth; if needed, rectal alimentation should be employed. Irritating medicines should not be administered.

If syncope threatens, cold applications should be

applied to the temples, the inhalation of ammonia vapors, or the injection of brandy into the rectum, or under the skin, should be employed.

If reaction does not occur and collapse remains and the pulse continues weak, a subcutaneous transfusion of from one to two pints of sterilized water containing to the pint one drachm of sodium chloride and fifteen to twenty grains of glucose should be resorted to. This may be repeated if necessary.

Hydrastis Canadensis.—This remedy has a most decided action in many of these cases, especially when there is a history of catarrhal affection, with discharges that are thick, white and tenacious, or yellowish-green and bloody. There is usually a history of gastric catarrh and persistent constipation. The second decimal trituration of hydrastine hydrochlorate is highly efficient.

Ipecacuanha is indicated when there is associated constant nausea. The face is pale and the body rather cool. The blood is bright red, it has but little influence in those cases in which there is degeneration of the blood.

Terebinthina.—This remedy in the lower potency is highly serviceable and especially if the hemorrhage is dependent upon a pathological condition of the stomach.

Hamamelis Virginica has been termed the aconite of the venous system. It should be remembered in those cases in which there is more or less of a general venous congestion, varicosities and a general tendency to venous hemorrhages.

Mullefolium should be studied in those cases in which the hemorrhage is more active than that of *Hamamelis*. There is excessive palpitation of the heart with malaise and weakness.

Erigeron.—When this remedy is indicated the hemorrhages are bright red. There is violent retching and burning in the stomach, with vomiting of blood, and sharp cutting pains in the epigastric region every few minutes followed by a dull pain.

Trillium should be studied when the hemorrhages are copious, are either active or passive and are usually of bright red blood. The patient has a disgust for everything except cold water. There are pains and cramps in the region of the stomach and vomiting of blood.

Crotalus horridus is indicated in those cases in which there is a rapid degeneration of the blood to such an extent that there are hemorrhages from any or all tissues. *Lachesis* should be studied in connection with *Crotalus*.

Phosphorus should be remembered in the tall, slender patient with fair skin, sanguine temperament and sensitive disposition, who complains of a sensation of weakness and emptiness in the abdomen. There is frequently portal congestion and such degenerations as lead to hemorrhages.

Acidum sulphuricum should be remembered in those cases in which there is an aphthous condition of the mouth and esophagus with gastralgia, acidity of the stomach, and a sensation of tremor all over the body, with vomiting of dark blood. The stools con-

sist of small black lumps mixed with blood. In this connection *Acetic acid* should also be remembered.

Aconitum napellus. This remedy should be remembered in acute cases, attended with fear, restlessness, fever, etc.

Arnica montana.—This may be of service in cases of traumatism.

Cinchona, as well as *Phosphoric acid* and *Ferrum phos.*, should be remembered following the loss of blood.

Adrenalin is of service in many cases of gastrointestinal hemorrhage. Six to ten minims of a 1:1000 solution every hour will cause a cessation of bleeding in the majority of cases. It may be incorporated with gelatin.

GASTRALGIA.

Synonyms.—Gastrodynia, Cardialgia, Neuralgia of the stomach.

Definition.—This is an affection of the sensory filaments of the pneumogastric nerve characterized by severe boring, painful contraction in the epigastric region, that extends from the xiphoid cartilage and radiates to the back. It may be accompanied by syncope and signs of collapse.

Etiology.—This affection is associated most frequently with a central neurosis as hysteria and neurasthenia, or a motor or secondary neurosis, pylorospasm, cardiospasm, gastrosuccorhea, or it may have a central cause in tabes dorsalis. In some cases it is the result of reflex influences as dis-

placed uterus, an inflamed ovary, or an ovarian neoplasm. Mental over-exertion, wasting discharges, excessive indulgence in alcohol, tea, coffee, tobacco and sexual excesses favor its development. Peritoneal adhesions between the stomach, pancreas, liver or spleen have also been known to be the exciting cause.

Pathology.—Most diverse pathological processes may be the cause of gastralgia. In some cases it will be found associated with the gastric crisis of tabes, while in others with progressive general paralysis. In other cases it is dependent upon an accumulation of food in the stomach, the result of a lack of gastric juice, and to spasmodic contractions of the esophagus, the result of hyperacidity of the contents, chronic alcoholism and gastritis. The anatomic seat of gastralgia in these cases is supposed to be in the epigastric part of the sympathetic nerve.

Symptoms.—This affection is characterized by intense, agonizing pain in the epigastrium. This may appear while the stomach is empty, again shortly after a meal, and especially if articles of diet or drink have been taken that are not well borne, even in a condition of health. It may be precipitated by a psychic condition, or it may occur in women during the menstrual period. The pain appears more or less suddenly and may be so severe as to cause a reflex spasm of the cutaneous vessels. The skin becomes pale, is covered with cold, clammy sweat, and syncope and clonic muscular contractions may occur. The pulse is small, the patient moans, bends forward and

presses upon the abdomen. There may be but one attack, but more frequently they are recurrent and may persist for months.

Diagnosis.—This is based upon the location and the character of the pain, the freedom from fever, and the absence of symptoms that attend round ulcers of the stomach and carcinoma.

GASTRALGIA.

1. Generally relieved by pressure.
2. Not attended with hematemesis or melena.
3. The pain is frequently relieved by taking food.
4. The tongue is often pale and shows the imprint of the teeth.
5. There is apt to be belching of an odorless gas.
6. The appetite is capricious and irregular.
7. The sensations are variable, at times hot, again cold.
8. The pains are irregular, not dependent upon eating, it is frequently relieved by eating or pressure.
9. The chemistry of digestion is usually normal.

GASTRALGIA.

1. Occurs at all ages, more women than men and in the hysterical.

GASTRIC ULCERS.

1. Generally aggravated by pressure.
2. Frequently attended with hematemesis and melena.
3. The pain is aggravated by taking food.
4. The tongue is dry, red with white stripes in the center or smooth and moist.
5. Not much belching, more water brash.
6. The appetite may be good between the attacks.
7. The sensations are circumscribed, at one time burning or boring pains which may radiate to the back.
8. Seldom any pain when the stomach is empty; it is increased by eating and from pressure.
9. Hyperchlorhydria is the rule.

GASTRIC CANCER.

1. Most often occurs between forty and sixty.

GASTRALGIA.

2. No hematemesis.
3. Vomiting is frequent.
4. Pain irregular, not dependent upon eating and frequently relieved by pressure.
5. The chemistry of digestion may be normal.
6. Appetite poor, can digest proteids.
7. Belching not fetid.
8. No nodular development in the epigastrium.

GASTRIC CANCER.

2. Hematemesis is frequent, blood is small quantity and often decomposed.
3. Vomiting variable.
4. Pain is continuous and dull.
5. There is a deficiency of free hydrochloric acid.
6. Appetite irregular.
7. Belching frequently fetid.
8. Nodular development in the epigastrium is common.

Prognosis.—Nervous gastralgia is a distressing disease, but not fatal; when it is reflex the primary disease is the one to be considered in the prognosis.

Treatment.—There is possibly no affection that demands a more thorough investigation before undertaking its treatment intelligently than does gastralgia. If it be a displaced uterus, an inflamed ovary, a disease of the spinal cord or whatever the cause, it must receive attention. The life of the patient must be investigated, and if it is found to be a strenuous one, it must be corrected. She should have sufficient rest and sleep in a well ventilated room. The mental condition should be investigated and all conditions that will derange an unstable nervous system should be removed. During the attack, hot applications should be applied to the epigastrium by means of hot poultices made of oatmeal or linseed, by the use of the Leiter's coils through which hot water is continu-

ously flowing, or by means of a wet linen cloth applied over the epigastrium; over this the Leiter's coils with hot water flowing through them are applied, and over this again a wet sheet, and over all, several layers of flannel. Lavage of the stomach, with water as warm as it can be borne, is of service. A warm bath every night for ten minutes, followed by faradism of the stomach, is of service in many of these cases. If the appliances are not at hand for giving lavage, the filling of the stomach with hot water will be of service.

In all cases of gastralgia it should be ascertained if there is anything about the diet or irregularities of the meals that precipitate an attack. If it is worse when the stomach is empty, small and frequent meals should be given, or between the regular meals a glass of milk, eggnog or bouillon should be given, and on retiring a glass of milk and a few crackers may be placed beside the bed to be taken during the night should an attack waken the patient. In other cases the stomach should be given absolute rest for two or three days, after which a partially predigested food should be used. Tea, coffee, alcoholic stimulants and tobacco should be given up. Many of these patients are anemic and should be thoroughly nourished by food that is highly nutritious and easily digested. They should avoid heavy meals when they are exhausted. At such a time a half cup of water should be sipped, or a like amount of hot milk or broth. If the patient is highly neurotic she should take a rest of one hour after the principal meal.

Hyoscine hydrobromate 2x has been of service dur-

ing the attack in cases in which the stigmata of hysteria were present.

Codeine phosphate in $\frac{1}{4}$ to $\frac{1}{2}$ grain doses will be found useful.

Chloroform.—Teaspoonful doses every ten minutes of Chloroform water is often sufficient to relieve the pain.

The employment of hypodermatic injections of Morphine in these cases should be discouraged.

Nux vomica should be remembered in cases characterized by cramping, spasmodic pain. The patient is of the irritable, careful, jealous type, with dark hair, bilious or sanguine temperament and is disposed to be quarrelsome, spiteful, malicious, nervous and melancholy, and especially sensitive to pain. In the majority of these cases the patient has been taking an excessive amount of tea, coffee, tobacco, or alcoholic stimulants.

Ignatia amara.—This remedy is indicated in nervous hysterical patients, especially females who are introspective, silent, melancholy, given to sighing and weeping. There are cramping pains in the stomach, sharp, pinching, pressing pains in the pit of the stomach and in the right hypochondrium; pressive pain in the epigastrium; a relaxed flabby feeling in the stomach, or an all-gone feeling, as if from fasting, with great exhaustion; hysterical, changeful moods, now tearful, silent and melancholy, then impatient, irresolute, ill-humored and angry; burning in the stomach, regurgitation of food, frequent voiding of large quantities of pale urine.

Argentum nitricum is indicated in severe gastralgia, attended with heartburn which is aggravated or excited by eating. A gnawing, ulcerative, sore pain, seated at one spot, or radiating to different parts, with spinal irritation, pains sometimes appear to depend upon an irritable state of the nerves of the stomach proper; often there is flatulence, nausea and palpitation; pain increases and decreases gradually; hard pressure in the pit of the stomach brings relief.

Arsenicum album.—This remedy is indicated in those who complain of extreme weakness and prostration, or acute burning, or gnawing, corroding pains, accompanied by great restlessness, nervous excitability, coldness of the extremities, palpitation of the heart and nightly aggravations; feeling as if the stomach were inflamed; pressure in the stomach as from a lump; vomiting of food as soon as taken; faint, sickly feeling, with pale face and earthy complexion; induced by eating ice cream, cake, etc.

Carbo vegetabilis.—This remedy is indicated in those who suffer from fermentive dyspepsia with acidity and gastralgia, with waterbrash, coming on about 3 P. M., with thirst for cold water, bloating of the stomach, with burning pains, relieved by eructation; vomiting of large quantities of mucus tinged with bile, giving relief; suited to cases complicated with hysteria or dyspepsia, especially if there is present a hyperemic and irritable condition of the lining membrane of the stomach.

Cocculus Indicus.—This remedy is indicated in those who suffer from spasmodic and flatulent colic

with cramping pains in the stomach, preventing sleep, violent pinching, griping and cramping pains in the epigastric region, great distension of the stomach from accumulation of gases ; especially suited to cases where *Nux vomica*, being indicated, fails to cure, and pyrosis is not present.

Colocynthis.—This remedy is indicated in those who suffer from paroxysmal pains that extend into the umbilical region, obliging the patient to bend double ; exacerbations recur every few minutes, are not the result of indigestion, but rather, in some cases, of emotional excitement.

Bismuthum subnitricum.—This remedy should be remembered in cases of gastralgia when there is burning, griping, lancinating pain in the epigastrium with pressure in the stomach as from a load ; burning pain in the stomach, extending to the spine, with water-brash, flatulence and extreme prostration ; pains are sometimes relieved by bending backward.

Acidum oxalicum should be remembered in neurasthenic subjects. The pains have periods of remission, are worse from motion and while thinking about them. The gastralgia appears after eating, with pyrosis and cold feeling externally between epigastrium and umbilicus.

Bryonia alba is indicated in those of a rheumatic diathesis who are of a bilious tendency, irritable and incline to anger, who complain of contractive, pinching pains, relieved by eructations ; pressure in the stomach after eating as from a stone ; soreness and tenderness in the epigastrium ; bloated feeling in the

stomach, with stitches and oppression of breathing; symptoms aggravated by motion and by eating; pains come on in chronic cases an hour or two after eating and continue for several hours.

Belladonna.—This remedy is indicated in gastralgia that appears suddenly and disappears just as suddenly. There are cramping or shooting pains in the pit of the stomach, forcing the patient to bend backward and to hold his breath; periodical pains in the pit of the stomach, with tremor; region of the stomach sensitive to the touch; face bloated and congested; pressing, drawing and clutching pains extending to the back, nausea, thirst and vomiting, aggravated by drinking water or by motion, and ameliorated by eating.

Pulsatilla nigricans.—This remedy is indicated in those who are slow and undecisive. Their symptoms are always changing. They complain of heartburn when the stomach is empty; sour and bitter vomiting, with absence of thirst; feeling as if food had lodged in the esophagus; indigestion provoked or aggravated by eating of rich or fat food.

Cinchona officinalis.—This remedy is indicated in those who have become debilitated as a result of exhausting discharges, loss of vital fluids. The gastralgia is attended with great chilliness or coldness; constant feeling of weariness and debility, heartburn, with sour eructations, bloated abdomen and palpitation of the heart; gastralgia at a certain hour every day or every other day; gastralgia after natural or artificial depletions; torpid liver, with jaundiced hue,

and large, undigested stools, worse at night; pains aggravated or excited by cold, by eating, by fatigue or by emotions.

Veratrum album is indicated in those who are always chilly and complain of a cold perspiration, especially upon the forehead. There is pain in the epigastrium, coming on gradually, radiating upward to both sides and to the back between the scapulæ, increasing in violence till it becomes agonizing, then gradually wearing off; especially adapted to those cases in which the celiac plexus and sympathetic are involved; pain increases and subsides gradually, and is attended with marked coldness of the extremities.

Ferrum metallicum.—This remedy should be remembered in those who are anemic and suffer from atony of the stomach; heartburn, with feeling of a load in the stomach; vomiting immediately after eating, which usually relieves the suffering; aggravated or induced by coughing and moving about.

CARCINOMA OF THE STOMACH.

Etiology.—This usually develops after the fortieth year of life. Is more common in men than in women. Preceding disease of the stomach appears to favor its development, as chronic gastric catarrh, gastric ulcers and irritation of the gastric mucous membrane from indulgence in alcohol. It is more common in certain localities than others. This is undoubtedly due to some local peculiarity of diet, habit, or other factors. Injuries over the epigastric region and heredity appear to have some influence in its development.

Pathology.—Carcinoma of the stomach is usually primary. Its most frequent location is the pylorus, the next most common site is the cardia and the lesser curvature. The fundus is seldom involved in the new growth. The tumor may be circumscribed and attached to the mucous membrane by a small base which in some cases resembles a fungous growth. In other cases it appears as a diffused carcinomatous infiltration of the submucous connective tissue, and this development may penetrate the connective tissue of the muscular layer, and even the serous layer of the stomach, resulting in a thickening of the wall of the stomach.

Carcinoma of the stomach is designated according to the appearance of the neoplastic tissue; if there is a marked development of the connective tissue so that the new growth is dense and deficient in fluid it is termed a fibrous or scirrhus carcinoma. The great majority of cases start from the glandular structure of the gastric mucosa. When the so-called carcinoma milk can be scraped out with difficulty from the carcinomatous tissue with a knife it is termed medullary or alveolar carcinoma. If there are present within the growth spaces filled with gelatinous material resembling isinglass, it is termed colloid or gelatinous carcinoma. This type of tissue has a tendency to undergo disintegration. The superficial layer is often found destroyed and undergoes carcinomatous ulceration, when hemorrhages may result, or perforation of the stomach take place. The latter may be averted by adhesions forming between the stomach

and surrounding organs due to circumscribed peritonitis. The perigastric lymphatic glands also undergo carcinomatous infiltration. Secondary carcinoma often develops in other organs, most commonly the liver.

Symptoms.—Over 40 per cent of all cancers occur in the stomach. The symptoms are local and general. The latter consist in a manifestation of carcinomatous marasmus owing to the fact that in connection with the influences generally exercised by a carcinoma there is also the disturbance dependent upon the deranged gastric digestion. The progressive emaciation, increasing pallor of the skin, and the cachectic edema, may arouse suspicion, but it will not be until gastric symptoms have developed that its location in the stomach is determined. Of the local symptoms the demonstration of a tumor in the stomach is most diagnostic. It is usually to the right of the median line below the inferior margin of the liver. As the pylorus and the lesser curvature are concealed by the liver, the tumor is accessible only when it has attained considerable size and by reason of its weight drags the stomach downward. If the abdominal walls are thin, the tumor may become visible, and on palpation is found to be solid, irregularly nodular, and tender to the slightest pressure.

Carcinoma involving the cardia cannot be examined through the abdominal wall, but can usually be examined by means of the esophageal bougie which encounters a resistance about 40 cm. (15-¾ in.)

from the teeth. There is pain in these cases which may be severe, it is referred to the epigastric region and may be mistaken for gastralgia. There is frequently singultus and vomiting. The regurgitated gases often have an offensive odor, together with that of hydrogen sulphide. The vomited material may contain large numbers of *sarcinæ* and long curved bacilli which are thought to be responsible for the lactic acid fermentation of the gastric contents.

In the majority of these cases there is complete loss of appetite. The tongue is coated; the urine is passed in small quantities, and is of a deep red color, concentrated and usually contains indican. While the bowels are usually constipated, diarrhea may intervene. There is a gradual emaciation, and the skin presents a pallid or waxy-yellow appearance. An examination of the blood shows it to be deficient in the number of red corpuscles and in the amount of hemoglobin. The supra-clavicular and the inguinal lymphatic glands upon the left side frequently show carcinomatous, induration and enlargement.

Diagnosis.—The prolonged period of latency in many of these cases renders a diagnosis impossible during its early stage. The patient may have but few symptoms and consider it unnecessary to consult a physician for the dyspeptic symptoms that are present. But a history of prolonged dyspeptic symptoms in a patient past forty years of age, with pain of varying grades of intensity, and tenderness upon pressure in the epigastric region which is increased upon the taking of food, should be suggestive. Accompanying

this, there is apt to be the vomiting of material presenting a "coffee-ground" appearance. Examination of the gastric contents after a test meal, showing food stagnation, the absence of hydrochloric acid, and the presence of lactic acid, and accompanying these rapid emaciation, a subnormal temperature, and the development of a tumor, and the appearance of a cancerous cachexia, leaves little doubt of the condition present. It should not be thought that all cases are going to develop as just outlined for they will not. In some cases there is present gastric oppression, anorexia with drawing pains in the epigastrium or back, eructations, emaciation and tenderness upon pressure over the epigastrium. In other cases the symptoms appear suddenly as a severe gastritis, or like an acute gastric dilatation. The patient begins to vomit, and this, notwithstanding the careful attention to diet and the use of remedies, persists. He loses his appetite, is unable to take any food and soon shows an alarming state of inanition. In another class of cases a severe hematemesis or bloody, tarry stools are the first symptoms noticed, and one thinks of ulcer. Although the hemorrhage is controlled the patient gradually becomes worse, repeatedly vomits, at times food and again blood, to the end, or a fever appears, and we think of a cryptogenetic pyemia, an enteric fever, malaria, tuberculosis or peritonitis, but careful examination shows we are not correct. At times an examination under an anesthetic is of service; again so-called exploratory laparotomy is required to make the diagnosis conclusive.

Prognosis.—This is unfavorable, death occurring within a few months.

Treatment.—The treatment of cancer of the stomach varies according to the period of its development when it comes under observation, and while the treatment of these cases is not curative, yet much can be done to keep the affection latent as long as possible, to alleviate and remove the subjective and objective disturbance. For with a fairly good appetite and a careful combination of foods it may be possible to keep the patient for weeks or months in good condition.

The dietetic management of cancer of the stomach gives better results in prolongation of the patient's life and personal comfort than any other form of treatment. All food should be given in a concentrated and predigested form; those should be avoided which naturally remain long in the stomach and excite nausea and vomiting, and which in turn may cause pain and hemorrhage. Anything that causes undue fermentation should also be avoided, as it is liable to cause distension of the already thinned stomach wall to the point of rupture.

Apart from the local causes affecting the digestion, the gastric juice is often deficient in amount and altered in composition. The hydrochloric acid is absent and as a result it is important that all foods should be artificially digested. If there is much pain following the taking of food, or if there is a tendency to hemorrhage, feeding by the stomach should be wholly replaced by nutrient enemata. There is pos-

sibly no other disease in which life can be supported for so long a period upon an exclusive rectal alimentation as this one. After a few days' rest, the stomach is again often tolerant of a well selected diet. Generally speaking, those foods that are not digested in the stomach, as farinaceous and saccharine, should not be allowed, as they linger in the stomach, and with the catarrh present undergo fermentation, produce gas and cause nausea and vomiting.

Predigested albuminous foods are easier assimilated. Frequently after a rest from it for a time, the stomach will again tolerate farinaceous food without pain or formation of gas. If the growth constricts the cardia so that only fluids can be taken, it should be determined whether they are passing into the stomach or whether they are simply dilating the esophagus; again when there is stricture of the pyloric orifice so that food does not pass into the duodenum, gastric dilatation may result and only such foods as are absorbed from its walls should be allowed. These are water, peptones, albumoses, alcoholic stimulants, brandy, whisky and champagne.

In those cases where much gastric dilatation has taken place, liquid foods may remain for several days in the stomach and then be ejected. This should be borne in mind, and the stomach percussed from time to time to ascertain if this is the case. If the disease has not advanced too far, a dry diet may be employed, consisting of chicken, tender rare beef, finely chopped steak, scraped beef, soft boiled or raw eggs. If there is no pyloric obstruction, dry bread, toast and crack-

ers, baked potatoes may be added. In many of these cases it is advisable to assist the digestion by the aid of pepsin, hydrochloric acid or papain. As the case advances the diet should be liquid and concentrated and given in small quantities, one to two drachms every hour or two. In this list of foods are butter-milk, sour milk, pancreatinized milk, Koumiss, meat extracts, albumoses, egg albumen. The yolk of egg should be avoided, as owing to its fat it is not absorbed in the stomach. Beside the articles already mentioned, in some cases tea, cocoa, fruits cooked or in some cases raw, sago, rice, Indian cornmeal well cooked, butter, and olive oil, if well borne, are of service on account of high caloric value of their fats. To control the vomiting, small quantities of ice in the mouth, iced carbonated water, champagne, *Ipecac* and *Bismuth*. For indigestion, eructation, and gaseous distension, *Carbo vegetabilis*, *Pepsin* and *Muriatic acid* are of service.

Lavage of the stomach is of service when catarrh and dilatation are present; it should be performed carefully, as the stomach may be eroded. This removes stagnant remnants of food and toxic substances and improves the motor tone of the stomach and holds in check the coincident gastritis. When intelligently employed, it frequently brings great relief.

There is clinical evidence that remedies have an influence over the gastritis and other conditions attending carcinoma and they should not be neglected in its treatment.

Arsenicum album is indicated in controlling cancerous development in many cases. There is emaciation with development of a cachexia, the patient complains of nausea and vomiting and pains in the region of the stomach which are burning and lancinating in character. He is prostrated, anxious and is restless.

Phosphorus relieves the vomiting which occurs soon after eating or drinking. The vomited material may have a coffee-ground appearance. The pains are burning in character and there is also present constipation. The patient is tall, slender, fair, waxy and has dark rings about the eyes.

Carbolic acid should be remembered when there is pain in the gastric region, with nausea and vomiting of small quantities of blood. There is much fermentation and the patient is profoundly prostrated.

Hydrastis Canadensis is useful when there are severe cutting pains in the hypogastric region, with constant dull aching pain in the stomach after meals, and nausea, and vomiting of mucus. The bowels are constipated.

Kreosotum should be remembered when there is nausea and vomiting of all food that has been taken during the day. There is a localized hardness in the region of the stomach with pressing, gnawing ulcerated pains in the stomach, and hematemesis.

Condurango has an extensive clinical history in the management of carcinoma of the stomach. There are severe pains in the stomach with vomiting of coffee-ground material. There are hard, knotty, large

nodules in the pyloric region, with complete loss of appetite, emaciation and a cachectic look.

Other remedies that have had some influence in the relief of this condition are *Kali bichromicum*, *Calcarea carb.*, *Calcarea fluorica*, *Nux vomica* and *Lapis albus*.

Complications.—Hematemesis or hemorrhage from the stomach is the most common. The vomited material may have the appearance of fresh blood, but more commonly it resembles "coffee-grounds," ink or soot. Dilatation of the stomach is another complication due to stenosis of the pyloric orifice. In certain cases the pyloric ring is destroyed and pyloric incontinence results. Secondary carcinoma of other organs, especially of the liver, is a frequent complication. While, generally speaking, there is no fever, yet at times there is fever of an intermittent type. This is supposed to be due to the absorption of toxic material.

If the carcinoma is recognized early, gastrectomy should be considered. If this is undertaken it should be before other organs are involved in the process. Gastrectomy is a dangerous operation, mortality attending it is high, but this is not diminished by waiting, and an operation should be judged as well by its permanent result as by its mortality.

As the mortality from exploratory laparotomy is low this should be undertaken for diagnostic purposes more frequently than it is, whenever there is a well grounded belief that latent carcinoma is developing.

NON-MALIGNANT TUMORS OF THE STOMACH.

Fibroma, fibromyoma, adenoma, papilloma, lipoma have each been demonstrated in connection with the stomach.

Foreign bodies of various forms have been found in the stomach. In some cases operative procedure is demanded.

Sarcoma of the stomach may be primary or secondary. It is most common in persons from twenty to thirty-five years of age. The symptoms are not characteristic.

CONGENITAL PYLORIC STENOSIS.

Although rare, this condition is met with. The subjects have been healthy children from one day to eight weeks old.

Nothing is known of the etiology.

Pathology.—Three distinct conditions have been noted; first, a persistent spasm of the muscular fibres of the pylorus. Second, a hypertrophy of the mucosa and muscular fibres of the pylorus. Third, a secondary hypertrophy of the muscle dependent upon a continual pyloric spasm, erosions, fissures of the mucous membrane and hyperchlorhydria. At the autopsy or operation, the pylorus has been found several times its normal thickness. It is hard and elongated. The lumen of the pyloric sphincter may be nearly normal or so contracted that a fine probe will not pass. The microscope shows a great increase of the circular fibres and the size of the muscle is thickened.

Symptoms.—The most characteristic symptom is vomiting. This may begin when the child is one day old. It is occasional at first, but later becomes more frequent and takes place immediately after feeding, or an hour or two after. The quantity may be small or it may be large and consist of a part of several meals. It consists of milk and seldom shows any bile. The stools are small consisting of but little remnants of food, consist mostly of mucus or slime, dark brown or dark green in color.

The epigastric region is distended, while the lower part of the abdomen is flat. The constant peristaltic action of the dilated stomach is often visible. A small movable tumor may be felt in the pyloric region. There is continuous loss of flesh.

In pyloric spasm, the symptom-complex while similar is not so marked. The vomiting is not so regular and often resembles gurgitation, and there may be periods when the child does not vomit. Diarrhea may alternate with constipation.

Diagnosis.—This is based upon persistent vomiting, obstipation, emaciation, visible peristaltic waves over the stomach, and the pyloric tumor.

Hypertrophic stenosis of the pylorus must be differentiated from the simple spastic variety, congenital atresia of the pylorus, a congenital narrowing of the duodenum, chronic indigestion and peritonitis.

Prognosis.—In the simple spastic form it is favorable, but hypertrophic stenosis terminates in death within a few weeks unless relieved surgically.

Treatment.—For the first few days, till it is de-

terminated whether the case is of the true hypertrophic form or one of the spastic type, the treatment must be dietetic and medicinal. If the child is being nursed the quantity should be diminished one-half to one-third, and the intervals between nursing shortened. If the child is on artificial food it should be administered in small quantities at frequent intervals (two hours). If no food can be retained, rectal feeding should be undertaken.

In some cases where the food remains in the stomach and putrefies, washing out the stomach with warm sterile water containing three per cent. of sodium bicarbonate is of service. This should precede the feeding. Warm applications over the epigastrium should be used.

Laxatives should not be employed. Medicine carefully adapted will control gastric spasms, while operative procedure is demanded in the hypertrophic form.

Three types of operations have been undertaken, gastro-enterostomy, pyloroplasty and divulsion or the Loretta operation. Gastro-enterostomy is the operation most in favor. Following this, enteritis must be guarded against. Pyloroplasty and divulsion of the pylorus are not followed with as good results.

CONGENITAL DISPLACEMENT OF THE STOMACH.

This occurs with a transposition of the viscera. With this condition the cardia will be found upon the right and the pylorus upon the left side. It is not attended with any physical disturbance.

CARDIOSPASM.

Synonym.—Cramp of the Cardia.

This is a spasm of the cardia and occurs as a symptom of hysteria, neurasthenia, and is often symptomatic of certain nervous affections of the stomach, as hyperchlorhydria and hyperesthesia.

It appears in two forms, either paroxysmal that lasts from a few hours to a day or two, or as a chronic form that may last over a prolonged period. The acute attacks resemble gastralgia, except that the pain is in the region of the cardiac orifice and extends to the back.

Dysphagia is more or less constant in the chronic variety, so that in time dilatation of the lower extremity of the esophagus results. A diverticulum forms and the food is regurgitated unchanged soon after it is swallowed. In these cases the second deglutition murmur heard normally below the xiphoid appendix in from two to ten seconds after swallowing solids or liquids is absent. The condition must be differentiated from malignant and non-malignant strictures of the cardia, also from aortic aneurism.

Treatment.—This consists in overcoming the underlying neurosis. If there is any organic lesion of the esophagus or of the cardiac orifice of the stomach, it should be corrected. There may be a hyperirritability of the esophagus. In these cases all irritating foods should be avoided and a diet that is non-irritating, easily digested and finely divided, employed. In some cases it may be necessary to employ a milk

diet and introduce it into the stomach by means of a stomach tube.

In many cases the introduction of a firm esophageal bougie leaving it in place for half an hour is beneficial. In those cases where it is impossible to pass a tube or bougie, a small amount of cocaine may be applied to the parts by means of a sponge held in the opening of the stomach tube. The galvanic current is of service in these cases. The anode should be applied in the esophagus.

One of the following remedies may be of service :

Ignatia amara for patients who are sensitive, peevish, excitable, and hysterical. They are always grieving over something and complain of a weak, empty feeling in the pit of the stomach, which is not relieved by eating. They frequently have spasms of different parts after mental agitation.

Rhus toxicodendron is indicated in patients whose symptoms occur and are aggravated during repose, and are ameliorated by continual motion. The spasm is apt to occur after eating and after drinking ice water. There is a sensation of pressure in the stomach as if it was swollen, or as if compressed.

Pulsatilla nigricans is adapted to patients who are easily excited to tears with fitful moods, of a yielding disposition, and who are inclined to grief. The digestion is slow and imperfect. The taste of the food remains in the mouth, it is sour and there is a sensation of tightness in the stomach, especially after eating, and there is a sensation as if food was lodged in the lower portion of the esophagus.

Arsenicum album is indicated when there is rapid and great exhaustion, with despondency and restlessness. There are violent burning pains in the region of the stomach which feels as though the parts were on fire. There is irregular convulsive action rather than the ordinary peristaltic or auto-peristaltic motions.

Nux vomica is of service in malicious, irritable patients, who make great mental efforts. Their complaints are usually caused by stimulating drinks, highly seasoned food, and a too sedentary life. There are cramping, constricting pains in the region of the cardia extending to the back.

Hyoscyamus is indicated in those who are given to great nervous excitability. They have nausea and vomiting, with spasms of the esophagus.

HYPERCHLORHYDRIA.

Synonyms.—Superacidity, Hyperacidity.

Definition.—This is a secretory neurosis characterized by an increase in the hydrochloric acid of the gastric juice so that the total acidity of the gastric contents after a trial breakfast may exceed 70, and the percentage of free hydrochloric acid may exceed 0.25.

Etiology.—It may appear as a pure neurosis without any change in the gastric tubules, or there may be an increase in the number of the acid and ferment secreting cells as from gastritis.

Pathology.—In this disease free hydrochloric acid appears earlier than is normal in the process of diges-

tion and is present in increased quantity through the period of digestion. At the height of the digestion of the test meal, the acidity of the gastric filtrate may be from 0.4 to 0.7 per cent., while the normal is from 0.15 to 0.2 per cent. The digestion of proteids is accelerated while that of carbohydrates is interfered with.

Symptoms.—Hyperchlorhydria is a most common form of stomach disorder and is found in neurotic subjects and is usually traced to nervous strain, worry or fatigue. The patient complains of more or less gastric distress, uneasiness and diffused pain which occurs from one to four hours after meals. There is frequently a sensation of gnawing pressure or burning in the epigastrium (heart burn). The appetite is usually good, but the nutrition is below par. The bowels are as a rule constipated. Headache is common. There is more or less tenderness over the epigastrium. Gastric motility may be normal, increased, or diminished.

Diagnosis.—This is based upon the symptoms as outlined, the relief from anti-acid treatment, and the examination of the stomach contents which shows an excess of free hydrochloric acid.

Prognosis.—By attention to the underlying neurotic condition and a careful selection of the diet, the condition is usually controlled.

Treatment.—The first effort should be to overcome the neurotic condition by improvement of the general health and an outdoor life. Nearly all these patients suffer from constipation which must be over-

come. There is frequently an intestinal auto-intoxication that must be corrected. If possible the patient should have an abundance of a highly nutritious diet. The practice of changing the diet frequently has an injurious mental effect. The diet should be non-irritating so far as the secretion of the stomach is concerned. The reduction in the amount of sodium chloride in the diet from which hydrochloric acid is derived has in some cases had a most beneficial effect. Acids, spices, alcohol, tea and coffee should be eliminated from the diet, while mineral waters, especially those containing lithia, should be used continuously if the effect is good. The diet should be a mixed one; meat, eggs and milk as a rule are well borne, carbohydrates may be borne by some, but all forms of sweets should be forbidden. Such meats as roast or broiled beef, chicken, game, lamb, mutton, veal without sauce, oysters and easily digested fish may be allowed. Wheaten bread, crackers, rice, farina, vermicelli, spaghetti, macaroni, and potatoes, mashed or baked, may be tried. Fats may be used in the form of cream, butter and fine salad oils. If there is no motor insufficiency, vegetables with milk and eggs are of use, as they relieve the constipation. Vegetables do not agree with some, but usually spinach, green peas, asparagus tips and young carrots may be tried. Fruits are not well borne by the majority. Tobacco should be limited. Undue mental exertion should be forbidden. If the patient is greatly exhausted he should be confined to bed and massage given. If the pain is severe, cool or cold compresses

should be applied over the stomach. Small meals at frequent intervals are the rule, especially late in the day.

Lavage should be remembered in those cases in which gastritis is present. If the patient's rest is disturbed the stomach should be washed out before retiring. In some cases it will render excellent service if done before the mid day meal. A solution of the bicarbonate of soda is used.

In the selection of the remedy too much stress should not be placed upon the gastric symptoms, but these together with the general symptoms should be considered.

Nux vomica should be studied in hypochondriacal subjects, who give a history of gastric and liver complaints, who live a sedentary life, whose diet contains highly seasoned foods, and excess of coffee, tea and spirituous liquors. The tongue is red and tender, is coated yellow at the base and there are excessive acid eructations or vomiting of sour fluid. There are nausea and vomiting each morning. The bowels are usually constipated. The stools are large and difficult to evacuate, but with frequent urging.

Graphites is of service when the digestion is slow and imperfect, and there are accumulations of gas in the bowel with much distension and vomiting of sour material. The tongue is coated, there is a bitter taste in the mouth, with eructations of sour fluid. The bowels are constipated, the stools are large and knotty and are evacuated with difficulty; or they may consist of partially digested food and have a putrid odor.

Argentum nitricum is useful in neurotic patients in whom there is great distension of the stomach, and violent eructations of gas, which comes up with great force, after which the patient feels greatly relieved. There is severe pain in many cases. The patient is exhausted and though the food is not vomited it does not appear to nourish the patient to any extent.

Ipecacuanha should be remembered in those cases in which there is persistent nausea and vomiting. There is more or less abdominal colic which is characterized by a griping pain as though the intestines were grasped by a hand.

Robinia is indicated in cases characterized by excessive acidity of the stomach. There is nausea and vomiting of intensely acid fluid and there are frequent sour eructations. The whole province of this remedy simulates hyperchlorhydria.

Iris versicolor is frequently indicated in cases in which there is great burning and distress in the region of the stomach. There are sour eructations and nausea and vomiting of intensely sour material. The patient is subject to sick headaches which begin with a blur before the eyes.

Hydrastis Canadensis should be remembered in those cases which are accompanied by chronic gastritis and atonic dyspepsia, torpidity of the liver, enfeebled circulation and constipation. The appetite is poor, and there is gastric distress especially after eating bread and vegetables. There are sour eructations and a sensation as of weight in the stomach or of emptiness and an all-gone sensation.

SUBACIDITY OF THE GASTRIC JUICE.

Hypochlorhydria is a condition met with in neurotic subjects in whom there is a deficiency in the amount of hydrochloric acid secreted. This may be dependent upon some condition that has destroyed the secreting glands or cells of the gastric mucous membrane. It may alternate with a condition of achlorhydria or hyperchlorhydria or accompany a condition of atony of the stomach. It may be associated with acute or chronic gastric catarrh, the early stage of cancer, gastric amyloid degeneration and gastropotosis.

Diagnosis.—This is dependent upon the examination of the contents of the stomach. It should be distinguished from gastric cancer, and the atrophic form of gastritis.

Treatment.—This consists in the administration of diet that is principally digested in the small intestines, and one that will pass quickly from the stomach. The food should be thoroughly masticated, and semisolid or liquid articles should be employed. Beef tea stimulates the gastric secretion and is of service.

The following articles of diet are frequently of service: Scraped or chopped raw meats, or meat that has been thoroughly boiled, milk, cream, butter, buttermilk, cottage cheese, cocoa, wheat bread, well toasted, or bread that is at least twenty-four hours old, crackers, gruels of various sorts from the finer carbohydrates, vegetables in pure forms, baked or mashed potatoes, raw oysters, fish and sweetbreads

that are thoroughly boiled. As improvement takes place other articles of diet may be introduced as meats prepared in various ways (except frying), macaroni and various forms of puddings, baked or stewed fruits, and, of the uncooked fruits, grapes, ripe pears, and peaches may be tried carefully. A general cold sponge, shower or tube bath followed by thorough friction is of service. Local galvanism is also of service.

ANACHLORHYDRIA.

Definition.—This is a total loss of the gastric acid secretory function.

Etiology.—While it may be dependent upon a gastric neurosis, there may be an actual atrophy of the gastric tubules the result of a glandular gastritis.

Symptoms.—In these cases the acidity of the gastric secretion is absent. In some cases there are but few symptoms, while in others there are anemia and dyspeptic symptoms referable to the gastric atony.

Treatment.—This consists in an endeavor to restore the secretory loss. Intra-gastric douches of a weak solution of Hydrochloric acid, intermitting with a douche of Bicarbonate of Soda and salt, and the daily use of intra-gastric electricity for its influence upon the secretion and the motility, are of service. The use of dilute Hydrochloric acid, ten minims to a glass of water; of this one-fourth may be taken before the meal, and one-fourth at intervals of thirty minutes till all is consumed. An active papain or diastase preparation may be employed if gastric digestion is imperfect, with a pancreatic preparation.

GASTROXYNSIS.

Definition.—This is a periodic secretion of gastric juice which occurs independently of the taking of food.

Etiology.—It appears as a primary neurosis, or is dependent upon some central organic nervous disease as tabes. It may be associated with hyperchlorhydria.

Symptoms.—In connection with the excessive secretion of gastric juice there is gastric distress, pain, nausea and vomiting. The pain may be severe and be attended with a headache which is intense. There is often pallor of the face and coldness. The duration of the attack varies from a few hours to several days. It may recur at intervals of days, weeks or months. The attacks often occur at night or during the early morning hours.

Diagnosis.—This is by exclusion to a very great extent. Gastric ulcer and the gastric crises of locomotor ataxia should be excluded.

Prognosis.—Favorable.

Treatment.—This consists in building up the patient and adopting measures to overcome the neurosis. If hyperchlorhydria is present in the intervals between the attacks, means should be employed that will overcome it. At the beginning of the attack the stomach should be lavaged with hot soda water. This should be repeated at intervals till the attack has abated. If this cannot be carried out, the patient should drink large quantities of hot water in which Bicarbonate of Soda has been dissolved. Following

the attack the diet should be of the bland type, and especially animal food.

GASTRO-SUCCORRHEA.

Hypersecretion of the gastric juice.

In this condition there are present in the stomach, even before the morning meal, large quantities of the gastric secretions. It may be associated with hyperchlorhydria. This will be noticed if during the night the patient complains of an increased thirst and a boring, burning pain in the epigastrium. The epigastric pain is continuous after meals and there is vomiting of an acid fluid; this at first is occasional, while later it occurs one or more times daily, usually after breakfast.

The neurotic condition must be treated; the condition requires much the same treatment as hyperchlorhydria. The amount of fluids taken must be limited and the animal food increased.

NERVOUS DYSPEPSIA.

Synonyms.—Atonic dyspepsia, gastric neurasthenia.

Definition.—This is a neurosis dependent upon an acquired or inherited neurasthenia or hysteria, which results in a functional discord of the vaso-sympathetic nerves of the stomach and through these a disturbance of the digestive function.

Etiology.—The neurosis occurs most commonly in those between the ages of twenty and forty, but may

occur earlier or later in life. The exciting causes are overwork, excitement, care, worry, sorrow, sexual excesses, and improper manner of living. In some cases the patient appears to be robust, but on more careful examination is found to present nervous symptoms.

Pathology.—On account of the changed action of the nerve supply of the stomach its normal rhythmical action is interfered with and an abnormal acidity and irregular motility results.

Symptoms.—These are indefinite, capricious and changeable. There is hyperesthesia or a diffused sensitiveness confined to the area of the stomach. The changeable appetite alternates with constipation and diarrhea, and a feeling of general depression, sleeplessness and ill humor and fatigue are present. During the morning there is a sensation of illness and pressure about the head, vomiting is often present and is dependent upon a spasm of the pylorus.

Diagnosis.—This is based upon the etiological factors, the changeful character of the affection and symptoms, the inconstancy of the character of the secretion and motility. It should be remembered that the whole nervous system is involved by way of a reflex action from the gastric nerves.

Prognosis.—If recognized early and treatment instituted, this is favorable so far as life is concerned, but unfavorable to recovery, as many of the mental conditions are most persistent in many cases. If the case is a prolonged one, so that the memory and will-power has become impaired, the prognosis is not good, and relapses are frequent.

Treatment.—In the majority of these cases the will-power is below par and the imagination is perverted. The first task is the toning of the will-power, and the change of thought into the proper channel. The attendant should be cautious not to arouse any exaggerated or imaginary illness. The physician's examination should be so thorough as to dispel any skepticism on the part of the patient that the physician does not understand his case thoroughly. Patients should not be allowed to talk of their condition. It should be impressed upon their mind that it is not fatal, and the condition should be explained. After taking into consideration the patient's habits and social position, definite rules of diet and of living should be given. Hydrotherapy is of service in many of these cases. The warm hip bath or a tepid bath before retiring and a cool sponge and cold shower bath in the morning may be advised. Sea baths are beneficial to the robust and general massage is beneficial to almost all.

These patients should have a liberal diet and one that is varied in character so that the system is well nourished, and especially the nervous system. Meats, fats, easily digested vegetables should be allowed. Those articles that ferment easily should be avoided, as well as alcoholic drinks and highly seasoned foods.

A change of climate and surroundings is highly beneficial in many of these cases, as many of them in new environments can digest their food without distress. The sipping of a small quantity of hot water during an attack is beneficial in the majority of cases,

but too much water should not be taken to distend the stomach. If vomiting is a prominent symptom, lavage will be of service.

The constipation which is present in the majority of these cases should be overcome by exercise, diet and hygienic methods if possible. Electricity is of service in many of these cases. Faradism or galvanism, either over the epigastric region or intra-gastric, or the static insulation is highly beneficial.

The question of rest and exercise should be carefully considered. Anemic patients and those suffering from a false plethora should remain in bed much of the time and be massaged. In some cases absolute rest and highly nutritious food at short intervals should be given. If not confined to bed, they should at least rest for an hour after the heavy meal of the day. Those patients who are plethoric should take exercise, such as horseback riding, golf and tennis to keep them from becoming introspective.

Anacardium orientale.—This remedy is indicated when there is great accumulation of gas with frequent eructations and a sensation of weakness and sinking in the epigastrium extending to the spine. This distress, similar to that of *Kali phos*, occurs as soon as the stomach is empty, or partially empty, and is relieved by eating. The patient complains of hearing voices, and being conscious of a double ego, and a desire to curse and swear.

Kali phosphoricum should be studied in neurasthenic subjects who complain of an all-gone sensation of the stomach temporarily relieved by eating. The

gastric symptoms are aggravated by excitement and worry. The urine is diminished in quantity and contains an excess of phosphates. It is frequently found curative when *Anacardium* has failed to relieve.

ANACARDIUM ORIENTALE.

1. Gastric pain and distress returns regularly two hours after meals.
2. *Anacardium* relapses are apt to be due to dietetic errors.
3. The amount of urine fairly normal.

KALI PHOSPHORICUM.

1. Gastric distress returns from one to three hours after meals.
2. *Kali phos.* relapses are usually due to worry and excitement.
3. Urine diminished and contains an excess of phosphates.

Strychnina 3x is indicated in nervous dyspepsia when there is exhaustion of the vital centers. The patient complains of a bad taste in the mouth with eructations of bitter gases, and an almost constant retching with a burning sensation along the esophagus attended with nausea and vomiting. She is extremely nervous and complains of a confusion of ideas, is exceedingly despondent and irritable. Occasionally one of the various preparations will act better than the pure drug. The arseniate of strychnine is useful when the patient is anemic, weak and debilitated, when the appetite and digestion are poor and there is constipation. There are indications of spinal irritation, the extremities are cold, and there is a cold and clammy perspiration over the body.

Strychnine phosphate is better for those who do mental work, have their meals at irregular hours, who do not masticate their food thoroughly and are not

careful of the quality of the food. The yare irritable, depressed and suffer from insomnia and palpitation of the heart. There is a bad taste in the mouth, the tongue is coated and there is frontal headache. The patient craves cold and acid drinks, and following the meal there are nausea and vomiting of sour fluid and partially digested foods.

Cuprum arsenicosum is frequently of service when there is a history of improper diet. The patient complains of distress and cramping pains that extend to the extremities, and is weak, anemic and debilitated.

Nux vomica.—This remedy should be studied in thin, irritable, dark-haired, bilious, quarrelsome, malicious patients, who suffer from the pernicious effects of tea, coffee, tobacco, alcoholic stimulants, highly seasoned foods, over-eating, sedentary habits, loss of sleep, or patent medicines. The patient complains of flatulence, distension of the abdomen after meals, with colic, difficult breathing, palpitation of the heart and constipation.

GASTRIC HYPERESTHESIA.

Definition.—This is a gastric neurosis characterized by increased irritability of the sensory nerves of the stomach which gives rise to a sensation of fulness, tension and oppression in the gastric region, following the taking of food. In some cases the distress is so intense that the patient refuses any food.

Etiology.—This is dependent upon a neurosis in hypochondriacal subjects. It is often associated with

chlorosis, while excess of alcohol or venery may be predisposing causes. It has been observed in cases of hyperacidity and locomotor ataxia.

Symptoms.—There is an increased irritability of the stomach so that the mildest food causes a painful sensation. This may be in the form of heat or cold, gnawing, pulling or burning, and the taking of the least food causes the distress, and even nausea and vomiting; again it may be relieved by taking food.

Prognosis.—This depends upon the correction of the underlying neurosis.

Treatment.—The neurasthenia, hysteria, chlorosis or any other underlying condition must have attention. The hygiene, diet, rest and mental surroundings must be regulated. A diet that is too hot, too cold, too sour or too sweet should be avoided. At first the diet should consist of small quantities of milk at frequent intervals, but eggs and semi-solid foods should be gradually added and, in time, solid foods. If there is much pain, hot applications are of service, as well as intra-gastric or external galvanism and general massage. Moderate exercise and a change of climate are beneficial. All forms of stimulants, acids, coffee, tea and spices should be stopped. Cold spinal douches followed by thorough friction is of service. Any abnormal condition of the stomach should be corrected.

Argentum nitricum, one grain of the salt dissolved in one ounce of distilled water, of this 20 drops given half an hour after each meal, has rendered excellent service.

Chininum arsenicosum is indicated when there is a sensation of burning and soreness in the stomach.

Arsenicum album should be studied when the patient complains of the burning, thirst and restlessness that characterizes the remedy.

Bismuth subnitrate should be remembered when the pain and distress is pronounced.

RUMINATION.

Synonyms.—Merycism.

Etiology.—This is a gastric neurosis characterized by a habitual regurgitation of small quantities of food into the mouth some time after it is ingested. The food is rechewed and reswallowed after the manner of ruminants. The patient may repeat the practice always after eating, in other cases it takes place only when the food has not been properly masticated. The nutrition of the patient may remain unchanged for some time, but in the majority of these cases a nervous disturbance of the digestion has been present for some time. It is most common among those affected with chorea, epilepsy, idiocy, and pulmonary tuberculosis. It is a reversion to an ancestral type and is met with in persons who present stigmata of degeneration. In some cases imitation has been the starting point, while with others eructation at first occurs unintentionally but finally becomes a habit. There are no distinct anatomical alterations, but there is probably a weakness of the muscles of the cardia and a dilatation of the stomach. The gastric contents show a lowered total acidity.

Treatment.—The co-operation of the patient must be secured, and his willingness to stop the practice. The food taken should be eaten slowly and masticated thoroughly. If the teeth are defective they should be repaired. Swallowing small particles of ice is beneficial in some cases. Suggestive treatment is often of service and hypnotic suggestion is worthy of a trial. The underlying condition should be corrected if possible. In some cases the use of a bitter drug, as *Quinine*, after a meal will be of service, as the patient does not enjoy the taste.

In those cases in which the gastric acidity is lowered, ten drops of dilute *hydrochloric acid* in a cup of water and taken in four parts, fifteen minutes apart, at the meal is beneficial.

GASTRALGOKENOSIS.

This is a neurosis in which the patient complains of a disagreeable or even painful sensation of emptiness in the stomach one or two hours after meals. This continues for half an hour or longer. It is associated with bulimia. As in hyperchlorhydria the ingestion of food relieves the distress.

This affection is a combination of hyperchlorhydria, hypermotility and gastric hyperesthesia.

BULIMIA.

This is an excessive hunger characterized by a ravenous appetite, so that the patient is unable to wait for regular meals. It may occur as a simple neurosis or be associated with gastric ulcer, hyper-

chlorhydria, intestinal parasites and brain tumor. It may be a symptom in some of the insanities and is characteristic of certain idiots. It usually appears suddenly, and if some food is not taken at once there appears a sensation of impending danger, prostration, headache and pallor, or even fainting. In some cases but a small amount of food is required to relieve the distress, while in other cases a larger amount is necessary.

In these cases *Sanguinaria*, *Oleander*, *Carbo vegetabilis* and *Sepia* should be studied.

ACORIA.

This condition is one in which the patient does not realize when he should take food, or there is an absence of the sensation of satiety so that he does not know when he has enough.

PICA.

This is the term applied to a gastric neurosis in which there is an unnatural desire to eat various articles, as slate pencils, chalk, lime, vinegar, etc. The patients are neurotic, and usually chlorotic. They are benefitted by a change of diet, scenery, and a perfect hygiene. In certain cases the desire is for substances of the most repulsive nature, and it is then indicative of insanity or idiocy.

These cases require a treatment that will overcome the neurotic condition, together with the application of the indicated remedy.

Nux vomica.—Desire for chalk, lime, coal, etc. (*Nitric acid*).

Alumina.—Desire for charcoal, coal, slate pencils, chalk, coffee and tea grounds, dry rice and other indigestible articles (*Cicuta v.*).

PERISTALTIC UNREST.

Nervous tormina of the stomach.

This condition is observed in neurasthenic individuals who complain of a disagreeable sensation in the stomach and of restless movements and actual pain. Waves of peristalsis may be noticed passing from left to right, or occasionally in the opposite direction. Care should be exercised not to confound this with the active peristalsis due to organic stenosis of the pylorus.

The treatment consists in the relief of the primary disorder. The patient should remain in bed and hot compresses may be applied over the stomach.

NERVOUS ANOREXIA.

This is a neurosis in which both the appetite and sensation of hunger are completely absent and there may be a repugnance to food. It may be dependent upon worry, anxiety, grief or suspense. The patient becomes emaciated and presents the appearance of one with a wasting disease. These patients should be put to bed, massage instituted, and forced feeding used. Predigested foods should be employed.

NERVOUS VOMITING.

Etiology.—Frequently this is dependent upon diseases of the brain and spinal cord, as concussion of the

brain, cerebral tumors, abscess of the brain, cerebral hemorrhage, cerebral meningitis and tabes dorsalis. It may be associated with a central neurosis and hysteria and at times it is of reflex origin, as is observed in the vomiting of pregnancy. It may be dependent upon biliary and renal calculi, upon toxic influences as uremia and cholemia. It occurs in women as a result of disease of the uterus and its appendages, and during pregnancy.

Symptoms.—Nervous vomiting occurs independently of gastric irritation, and in one in whom there has been no indication of derangement of the gastric function. The vomiting is sudden and without any preliminary nausea. In some cases the nutrition of the patient is interfered with and starvation has been known to result.

Diagnosis.—This is based upon the character of the vomiting, the absence of gastric symptoms and the normal ejecta.

Prognosis.—This depends upon the amenability of the cause to treatment.

Treatment.—This depends upon the cause. In severe cases the patient should remain in bed. No food should be taken for a few days except spoonful doses of ice cold drinks, as milk, tea, etc. In many of these cases lavage of the stomach and electricity have a most favorable influence. Spinal douches and all measures that will assist in overcoming the nervous and hysterical elements should be employed.

HYPERMOTILITY OF THE STOMACH.

This is a motor neurosis in which the contents of the stomach pass into the bowel before gastric digestion is completed. The patient is afflicted with an excessive appetite.

Hyperchlorhydria is commonly associated with hypermotility of the stomach and is supposed to be a frequent cause.

The treatment is practically that of hyperchlorhydria. The patient should live a quiet, retiring life, avoiding mental and physical excitement and exhaustion. Hydrotherapy is of service in many cases, as is intra-gastric galvanism. In some cases absolute rest for several weeks with massage and a highly nutritious, non-irritating diet is beneficial.

NERVOUS ERUCTATIONS.

This is observed in hysteric, neurasthenic and hypochlorhydric subjects. The patients suffer from eructations of gas which they swallow and which is expelled with loud noises. This may persist for hours or days. It may occur in paroxysms in consequence of mental strain or worry. It has been known to depend upon eye strain or an attack may be induced by pressure upon certain parts of the body. The gas is tasteless and odorless. The disease is unattended with danger. The treatment should be directed against the primary difficulty. The stability of the nervous system should be improved by diet, massage, cool sponging and such remedies as may be indicated. *Argentum nit.* should be studied.

HOUR-GLASS STOMACH.

Synonym.—Bilocular stomach.

Definition.—This is a condition of the stomach in which it is divided into two or more parts by a constriction.

Etiology.—It may be congenital or acquired, the result of ulcers, erosions or tight lacing.

Pathology.—The organ presents a sacculated appearance. The muscular fibres at the point of constriction are thickened.

Symptoms.—In some cases there are no symptoms or only discomfort. In the majority of cases dilatation due to the effort to force food onward may result with its attending symptoms.

Distending the stomach may show the constriction. The passage of the stomach tube beyond the constriction will show a different chemical analysis of the material in the pouch than that of the cardinal sac.

Cases of long duration show a loss of strength and flesh as a result of improper nutrition, and they may terminate fatally.

Treatment.—This is surgical.

GASTRIC PNEUMATOSIS.

This is a condition met with in neurotic patients which is a result of a spasmodic closure of the orifices of the stomach. This viscus becomes greatly and painfully distended with gas. Dyspnea and great subjective discomfort is thus produced.

The treatment consists in rest, nutritious diet, mas-

sage, baths and such remedies as will overcome the neurotic condition. The remedies indicated in cardiospasm are frequently of service in these cases.

PYLOROSPASM.

This is observed in neurotic debilitated subjects who suffer from hyperchlorhydria, hyperesthesia, dilatation, ulcer or atony of the stomach. There is paroxysmal pain, located at the right of the costal margin at the junction of the eighth and ninth ribs. This pain shoots through to the back and across the abdomen. The attacks are induced by eating when over-fatigued. There may be distension of the stomach. Vomiting cuts the attacks short. If the stomach contents are removed during the attack by means of the tube there may be a litre of material, the acidity of which is high.

The treatment consists in overcoming the neurosis and the associated gastric affection. All sources of irritation should be sought out and corrected, whether it be hyperchlorhydria, hyperesthesia, dilatation, gastric ulcer or atony of the stomach. Such remedies should be employed as appear to be indicated by the general symptoms. The galvanic current is of service in some cases. A strictly milk diet of from three to four quarts in twenty-four hours is beneficial. If pain is a severe symptom, *Bismuth* will often afford relief, and large doses of olive oil may be of service. If stasis is marked, lavage will give the patient relief.

THE INTESTINES.

ACUTE INTESTINAL CATARRH.

Synonym.—Acute diarrhea, acute catarrhal enteritis, enteritis, catarrhal enteritis, ileo-colitis.

Definition.—This is an acute inflammation of the mucous membrane of the small intestine and in some cases the upper portion of the colon.

Etiology.—It may be mild or severe. Some authorities have attempted to divide it anatomically according as it is confined to the duodenum, jejunum, ileum or colon, but such a division is not practical, as the process is liable to extend from one portion to another. But whether it is primary or secondary should be carefully considered.

The most frequent cause is dietetic error that results in irritation of the intestinal mucous membrane, as the ingestion of decomposed foods and drinks, unripe fruits or vegetables, fermented drinks, putrid water or food that is insufficiently masticated or is indigestible. Certain articles of diet that may be well borne by one may be an irritant to another and act as an exciting cause. It may result from certain irritant poisons, exposure to, or applications of cold. It is epidemic at times during the hot summer months, or during the autumn. It may be secondary to typhoid fever, measles, diabetes, malaria and certain constitutional and acute diseases.

Pathology.—The intestinal mucous membrane is

red, swollen and the secretions at first are diminished, while later they are increased. If severe, small blood vessels may rupture, and slight hemorrhages result. The lymph follicles are swollen. The secretions of the mucous membrane are increased. The contents of the intestines are thin and fluid. The mesenteric glands may become swollen and reddened.

Symptoms.—These vary with the extent of the disease and the portion of the bowel involved. If the large bowel is involved, diarrhea is present. If the process is confined to the small intestine, diarrhea may not be present, as the fecal matter acquires a consistency in the healthy large intestine. There is usually colicky, abdominal pain, with a moderate gaseous distension of the abdomen, rumbling and gurgling noises, and occasionally vomiting. The tongue is furred there is thirst, anorexia and scanty urine. The temperature is usually normal but may be slightly elevated (100.5° F).

When the duodenum is involved alone there is constipation with a slight pain and tenderness that are indefinite. There is usually nausea and vomiting and gastric distress (gastro-duodenitis). In this condition there is also slight jaundice, but the symptoms are indefinite.

When the colon is involved there is more pain and diarrhea with tenderness along the course of the colon. The stools are soup-like and contain large quantities of mucus. If the rectum is involved there is severe pain and tenesmus and large quantities of mucus and pus.

Diagnosis.—This is based upon the presence of a diarrhea and the short duration of the disease. It should be distinguished from typhoid fever by its short duration, the slight fever without the evening rise, and the absence of rose spots and the absence of the enlarged spleen. Peritonitis may closely simulate this disease, but in peritonitis the fever is high, there is more meteorism and abdominal rigidity.

Prognosis.—In adults this is usually favorable. When it attends the acute infectious diseases the prognosis becomes a more difficult question. The duration of the disease is rarely more than one or two weeks. There is, occasionally following an attack, an irritated condition of the colon that shows itself in the form of repeated attacks of diarrhea.

Treatment.—During the summer all food eaten should be such as is easily digested, well prepared and taken in normal quantities. All excesses should be avoided, especially the drinking of large quantities of carbonated waters and fruit juices and the eating of unripe fruits and various forms of ices. Constipation should be avoided. The treatment varies with the cause. If it is dependent upon a bacterial toxine or a metabolic poison, as uremia, the primary cause must receive attention.

The patient should remain in bed. If there is much abdominal pain warm or hot applications should be applied to the abdomen. If the temperature is elevated, a general sponge bath with tepid water will be found to be of service. All discharges should be removed at once from the room so that the

air of the room may be as free from odors as is possible. If there are indications of retention of undigested food or of scybala in the intestinal tract they should be removed by high colon flushing with a normal salt solution. At first the diet should consist of muttonbroth, whey, pancreatinized milk, milk diluted with Vichy or lime water, weak tea, a little well-cooked rice or milk toast. If the patient is accustomed to stimulants, brandy and soda water or champagne may be employed. Much fluid should not be allowed, but small pieces of ice may be taken in the mouth. It is advisable to keep the patient upon this class of food till the loose stools have ceased, as a return to solid food before the intestinal canal is prepared for it often results in lengthening the duration of the disease. When solid food is resumed, soft cooked eggs, raw oysters, scraped beef, toast, well boiled rice and crackers are the kind of food that should be employed.

Aconitum napellus.—This remedy is indicated in the very early stages of the disease if there has been an exposure to cold or dampness, or if the perspiration has been checked. The stools are green, scanty, loose, and frequent and are attended with tenesmus. The patient is restless, anxious and the temperature is above normal.

Belladonna is another remedy to be studied during the early stages, when the pupils are dilated and the carotids throbbing. The stools are small, frequent and involuntary, and are followed by tenesmus. The patient is sleepy but restless, and starts up from sleep

suddenly. There is a constant pressing toward the anus and genitals as if everything would press out. The pains come and go suddenly.

Gelsemium should be remembered in cases when sudden depressing emotion, fright, grief, bad news, excitement or dentition are the exciting factors. The patient desires to be quiet and alone and is drowsy. The pulse is soft and flowing and there is a slight fever.

Ferrum phosphoricum should be remembered in weakly, delicate, anemic subjects when the attack is produced by exposure. There is slight fever. The stools are undigested, copious, watery, sudden and painful and may be accompanied with vomiting.

Cuprum arsenicosum should be used in cases characterized by frequent discharges and sharp cutting, colicky pains. The stools are usually tinged with green and have an offensive odor. They are usually accompanied by vomiting.

Arsenicum album is indicated when the stools are watery, mucous or bloody. The patient is weak, exhausted and pale, and complains of faintness and rapid exhaustion, and burning in the rectum. The cheeks are sunken and there is great restlessness and exhaustion after the stools.

Aloes is indicated when the patient complains of pain and rumbling in the bowels before the stools, which may be involuntary. At times the stools pass without any exertion or escape with flatus. There is a sense of insecurity, so that the patient is never certain whether it is flatus or fecal matter that is to

escape. There is much flatus with each stool, and following each stool there is a sensation as though more remained in the rectum.

Ipecacuanha is indicated when there is present a continuous nausea and vomiting. The vomiting is worse after eating or drinking. The stools are as "green as grass," and fermented, or they may be dark, almost black. The face is pale, the tongue is clean and there is a cold sweat upon the forehead.

Veratrum album should be remembered in cases in which the stools are watery, sudden, involuntary, painful and copious. The body is blue and cold, the face indicates collapse. There is copious vomiting and a cold perspiration is on the forehead.

Croton tiglium should be studied when the stools are forcible, "coming out like a shot." They are yellow and watery. The condition is aggravated from the taking of food or drink.

Gambogia should be studied when the desire for stool comes suddenly. The stool is passed with one great effort, after which there is a sensation of great relief as if some irritating substance had been removed. There is great rumbling of gas in the bowels. The stools consist of yellow or green watery material.

Colocynthis.—This remedy should be studied in cases that are characterized by severe, agonizing, twisting pains in the region of the umbilicus which causes the patient to bend double and to press firmly upon the abdomen, as it affords relief from the pain. The pain comes in paroxysms and is temporarily relieved by discharge of flatus and stool.

Iris versicolor is indicated in cases in which there is vomiting of bilious material. The stools contain much bile and are of a yellowish green color, and are mixed with bile. They leave the anus excoriated and raw. The attacks are worse during hot weather and are attended with headache.

Podophyllum.—This remedy is indicated in cases that are aggravated during the early morning hours, while later in the day there may be a normal stool. The stools are yellow in color, liquid, and are painless.

Mercurius dulcis is indicated in cases in which the stools are preceded by colic and is followed by tenesmus. The stools are slimy, bloody, acrid and burning.

Chamomilla is indicated for patients who are irritable, peevish and oversensitive to pain. The stools are yellowish-green and watery. It is frequently useful in diarrhetic attacks that accompany dentition.

MORNING DIARRHEA.

This form is usually dependent upon ulceration of the rectum or of the sigmoid. In many of those cases in which ulceration of the sigmoid cannot be demonstrated a sensitiveness of this portion of the bowel to pressure is present. In a percentage of these cases, dilatation of the stomach is present.

In the management of these cases, the amount of fluid taken during the afternoon and with the evening meal should be restricted. Soups, tea, coffee and aerated waters should not be taken.

In obstinate cases a milk diet is highly beneficial. Abdominal massage is a most useful agent in many cases in improving the circulation.

In cases of ulceration of the rectum, the ulcer should receive attention and such treatment as will cause it to heal. In some cases rest and a milk diet and the keeping of the rectum clean is all that is required. Some cases require the application of a cerate of Boric acid, Hydrastis, Calendula and Rhatany.

The remedies that are of service are *Sulphur*, *Aloes*, *Podophyllum*, *Nuphar* and *Natrum sulph.*

CHRONIC INTESTINAL CATARRH.

Synonyms.—Chronic diarrhea, Chronic enteritis.

Definition.—This is a chronic catarrhal condition of the small and large intestine, attended with the formation of mucus and at times ulcers.

Etiology.—In many cases this develops as a sequence of repeated attacks of acute intestinal catarrh. In other cases it is dependent upon a hypostatic catarrh, the result of stasis from diseases of the heart, respiratory organs or portal stasis as is seen in hepatic cirrhosis. Chronic debilitating diseases as malaria, pulmonary tuberculosis, tuberculous ulceration, leukemia, carcinoma, prolonged suppuration, hemorrhoids, and chronic constipation may be the cause. Chronic interstitial nephritis, bad hygiene and a poorly selected diet and fatigue are also etiologic factors.

Pathology.—The mucous membrane, the seat of lesion, may be of a brownish red or grayish red ap-

pearance. The brownish hemoglobin may be transformed into a black melanin and the mucous membrane present a mottled appearance. The secretions are increased and the mucous membrane is covered with clear or turbid mucus. The lymph follicles are enlarged. The mucous membrane is thickened as a result of the hyperplasia of the connective tissue, and often the muscular layer and the mucosa are involved in the hyperplasia and the thickening. In some cases atrophy takes place and an atrophic intestinal catarrh results. In other cases a disintegration of the lymph-follicles takes place and follicular intestinal ulceration ensues or a destruction of the mucosa takes place and catarrhal ulceration of the mucous membrane results.

Symptoms.—The main symptom is alternation in the stools, which are frequent and of diminished consistency. In some cases there is abundant mucus which may envelop the fecal matter if in the large intestine, while if in the small intestine they are mixed. Constipation and diarrhea may alternate. The stools may contain a large amount of undigested material. Swollen sago-like granules are present in the stool. Blood may be observed in the stool. If it is from the rectum it is in the form of coagula, while if from higher up in the canal it is like coffee grounds. There is usually more or less rumbling and distension of the abdomen with flatus, while abdominal pain and tormina may be severe. The stools may contain undigested particles of food. The nutrition of the patient suffers. He becomes emaciated and acquires a

grayish sallow appearance, becomes hypochondriacal, and develops delusions, fears that he will become insane, and has doubts of his mental and physical condition. He is apt to be annoyed with vertigo, which is often produced or aggravated voluntarily by pressure upon the abdomen. There is also palpitation of the heart and asthmatic attacks. The appetite is variable. The thirst is increased, the urine is of a dark color and precipitates a reddish granular sediment of urates. It contains indican.

Diagnosis.—This is based upon the symptoms as outlined. There is diarrhea without colic. This may be lenteric in character. The general nutrition is impaired and the patient is anemic. If the small intestines are the seat of the disease, constipation may be present.

Prognosis.—While chronic intestinal catarrh is not as a rule dangerous, it is often extremely obstinate and difficult to control. In those cases in which the cause is incurable, the prognosis is unfavorable. The secondary changes which occur in some cases are permanent and render the case difficult to manage.

Treatment.—The treatment of many of these cases is unsatisfactory. The cause of the condition should be sought out and taken into consideration. In mild cases the patient should rest for at least one hour after the meal; while in severe cases, and those who do not show improvement with an hour rest after meals, they should be permanently confined to bed. If severe the patient should be put upon a milk diet for several weeks. The milk may be skimmed,

boiled, peptonized or diluted with lime water. This mode of treatment is often sufficient to effect a cure, except in tubercular cases. All fatty and saccharine foods should be eliminated from the diet, while the quantity of farinaceous foods should be restricted. The diet should consist of those articles of food that leave the least residue, as dry bread and toast, scraped lean meat, beef peptonoids. All food should be taken slowly and thoroughly masticated. The teeth should be in good condition. If it is found that emaciation continues upon an animal diet, oat meal porridge and mush, baked potatoes, or other similar foods which have been predigested with diastase or malt extracts. If there are indications of duodenitis with jaundice, fats should not be allowed. In mild cases in which constipation is present with the intestinal catarrh, the bowels should be regulated by a diet and systematic exercise, both active and passive. Massage of the abdomen and limbs, fresh air, bathing with warm water night and morning are advised. This should be followed by thorough friction.

Occasionally cases of chronic colitis are met with, in which a mixed diet appears to answer best. If the patient has been used to stimulants, the best forms to employ are brandy, claret or sherry diluted with two or three times their bulk of Apollinaris or plain water. At times these cases are benefited by a few weeks' stay at an alkaline mineral Spa.

In many of these cases it will be found that enemata are of service. They should be given slowly and passed well up into the colon with a tube. Its

introduction is best effected with the pelvis elevated or while the patient is in the knee-chest position. The water employed should be boiled and cooled and a small amount of salt, borax, hydrastis or other agents may be added. But it should never be of such strength as to cause distress.

In many of these cases the same remedy employed in acute cases is indicated in chronic cases and the therapeutics outlined under that heading should be studied.

Sulphur.—This remedy is frequently indicated in acute as well as chronic cases. The apparently indicated remedy does not afford the desired relief, or its effect is but transient. The diarrhea is worse during the morning and frequently drives the patient out of bed early. The evacuations are painless, the odor of the stool follows him as though he had soiled his linen and there is an offensive odor of the body despite frequent washing. The patient shows excessive prostration, becomes emaciated rapidly, and he is apt to be excoriated about the anus.

Natrum sulph. should be remembered as another that has a decided action in controlling morning diarrhea that appears later than that of *Sulphur*. The stools are of a yellowish-green color and gushing in character. Before the stool there is rumbling in the abdomen and colic, with a profuse emission of flatus accompanying the stool, giving relief from the colic. There are stitches in the hepatic region, and the liver is tender to pressure.

Mercurius corrosivus should be remembered when

there is present a constant and severe tenesmus and the stools contain much blood and pus. The abdomen is distended and painful.

Arsenicum album is indicated when there are present the restlessness with anguish and a desire to constantly change the position, together with the violent unquenchable, burning thirst for small quantities of water at frequent intervals. There is often nausea and vomiting immediately after eating or drinking. If the stools are watery, they are very offensive and usually without pain, while if they are mucous, they are usually offensive.

Argentum nitricum is frequently indicated following dysentery and when a chronic condition of ulceration remains. The patient is greatly emaciated. There is a tremulous weakness with debility and vertigo. There is much flatulent colic with loud eructations, at times there is an ineffectual effort to eructate which causes strangling. The stools vary in color, but often consist of green mucus like chopped spinach; they are expelled forcibly with much spluttering. These patients are fond of sweets but are aggravated by them.

Calcarea carb.—In the selection of this remedy the type of the patient and the general symptoms must be taken carefully. The patient is fat (false plethora). There are profuse sweats about the head when sleeping, especially on the back of the head. The feet are constantly cold and damp. The abdomen is large and distended. The stomach is irritable and there is sour vomiting.

Cinchona should be compared carefully with *Carbo veg.* They are also worse after a meal. The stools show partially digested food, are painless and are attended with much flatulence. There is marked distension of the abdomen, which is temporarily relieved by belching.

Gambogia.—When this remedy is indicated there is a history of a continued looseness of the bowels, or alternate constipation and diarrhea. The stool is thin and yellow and comes out all at once with a simple, somewhat prolonged effort, which is followed by a sensation of great relief, as though an irritating substance has been removed from the intestine. The anus feels sore and burnt.

Geranium maculatum should be studied in these cases when there are abnormal discharges from the mucous surfaces after the inflammation has subsided. There is a constant desire to go to stool, with inability to pass the least fecal matter. One to five drops of the tincture should be given every three hours.

Rhatany has proven of service in some of these cases, when associated with fissures and ulcers of the anus.

CHOLERA INFANTUM.

Synonym.—Acute milk infection.

Definition.—This is a serious form of infantile diarrhea, the symptoms of which resemble in many particulars Asiatic cholera. It is characterized by persistent vomiting, copious serous evacuations from the bowels, a high fever and rapidly developing collapse.

Etiology.—It is believed that this is a toxic condition produced by the absorption from the intestinal canal of the toxic fermentation of food, especially impure milk. It occurs most frequently during the months of July and August, and among infants living under defective hygienic conditions, and frequently with an improper diet.

Pathology.—There are no definite lesions apart from a desquamative catarrh of the intestinal tract. The kidneys are paler than normal and their cortex shows cloudy swelling.

Symptoms.—At times it begins with diarrheal movements of the bowels, but usually there is a brief period during which the child is restless and appears to have some abdominal distress. The temperature rises, the child begins to vomit and this is soon followed by purging. The vomiting is nearly continuous and consists at first of the contents of the stomach, then bile stained mucus and finally serous fluid. The evacuations from the bowels follow a similar course, become copious, fluid, alkaline in reaction and have a musty odor. The microscope shows them to consist of epithelial debris, round cells and bacteria. The discharges contain little or no fecal material, and pass through the diaper. There is not much pain, and while the surface of the body and extremities feels cold to the hand, the rectal temperature is usually from 103° F. to 105° F. The child is thirsty, but all fluid taken into the stomach is speedily rejected. It loses strength and weight. The face becomes of an ashy hue, the eyes are sunken and pinched. The

pulse is quick, and weak, and intermittent, while the urine is scanty and may be suppressed. The restlessness which characterizes the early stages is replaced by apathy, which is followed later by a hydrocephaloid state, when the head is drawn backward and may be moved from side to side. The pupils are sluggish and may be unequal. The abdomen is retracted and the respirations are irregular. As the end approaches the child becomes more comatose and often passes into a convulsion which closes the scene. Occasionally hyperpyrexia is present before death. In some cases the process is so rapid that collapse and death take place within twenty-four hours. In those cases that recover the vomiting ceases, the stools gradually return to the normal fecal character, the character of the pulse improves, the restlessness abates, convalescence is slow and relapses are not uncommon.

Diagnosis.—This is based upon the character of the onset, the vomiting, the evacuations of the bowels, the high rectal temperature and the rapidly developing collapse.

Prognosis.—This is not good, especially when the child is artificially fed, when the brain is affected early and coma and convulsions are present. The younger the child, the hotter the weather and the higher the temperature, the more unfavorable the case.

Treatment.—When the disturbance appears, the stomach should be given a rest. If breast fed, the period between the feedings should be prolonged, or

the child should not be allowed to remain so long at the breast as usual. If the child is being fed on artificial food, it should be withheld for from twelve to twenty-four hours. During this period water may be given and at the end of this period albumen water or barley water may be used for twenty-four hours. If the food the child has been taking before the attack has agreed, it may be gradually resumed, but diminished in amount and at lengthened periods between the feedings. If the intestines show much involvement in the process they should be cleaned out by a high injection or by other means. If the vomiting and diarrhea have been such that there has been great loss of fluid, large quantities of water should be given, high enemata of normal salt solutions or hypodermoclysters. For an infant, a pint and a half may be used five or six times a day. High fever should be treated by hydrotherapy, the child being bathed every hour or two. Low temperature should be avoided. The water should be employed but a few degrees below the rectal temperature of the patient. The patient should be kept warm by wrapping in warm flannels surrounded by warm bottles. Food should be given hot. An excellent stimulant for many of these cases consists in a mustard bath. One tablespoonful of mustard should be put in a bag made of loose cloth; this should be put into the bathtub at the far end from the child. The child should be kept in the bath till reaction sets in upon the arm of the attendant who is holding the child. No reaction on the part of the child from such a bath is an unfavorable condition.

At times the eyes require a wash of boric acid solution. If the eyelids remain open, as they do at times, a piece of fine lint saturated with boric acid should be kept over the eyes.

The disease is at times followed by cholera typhoid; this requires care in diet, stimulants, hydrotherapy and remedies.

Aconitum napellus should be given during the early stages when the child is restless, the pulse is feeble, there is cold sweat, motor and sensory paralysis, vomiting and purging, and even convulsions. In spite of the cold sweat, the rectal temperature will be found high.

Mercurius dulcis should be given when the stools are dark green, with griping, cutting pains in the abdomen. The stools are scanty and consist of green mucus and there is present a constant urging.

Cuprum arsenicosum is indicated when the stools are watery and serous and may be of greenish color. There is usually pain in the abdomen, and cramping in the extremities.

Veratrum album is indicated when there is vomiting and purging. The stools are profuse, like rice water. There is a cold sweat, especially upon the forehead. The patient is greatly exhausted and even in a state of collapse. There are cramps in the extremities.

Camphor is indicated when there is an early and sudden collapse, with cold sweat on the face and a cold blue surface. The voice is weak and hoarse and the infant is almost unconscious. The stools are painless.

Arsenicum album is indicated when there is extreme restlessness and prostration with unquenchable thirst for small quantities of water. The face is pale and cadaveric and the skin is cold. There is frequent vomiting and purging. The stools are frequent, offensive and watery.

Zincum metallicum should be remembered late in the attack, when the features are sunken and the patient is in a state of collapse. The eyes remain open, the fontanelles are sunken and there is deficient nerve power. The temperature is subnormal and there is an absence of reaction.

Euphorbia corollata is indicated when there is sudden and profuse vomiting, first the contents of the stomach, while later it is a rice water material. There is a copious watery diarrhea, which alternates with the vomiting. There are cramps in the intestines, with anxiety, faintness and exhaustion.

Secale cornutum should be remembered when the acuteness of the attack has passed. The stools are watery and profuse, and are attended with great prostration, coldness of the surface of the body and a dislike of being covered.

CHOLERA MORBUS.

Synonym.—Cholera nostras.

Definition.—This disease is characterized by vomiting, purging, severe abdominal colicky pains and muscular cramps.

Etiology.—It occurs in those of all ages, is most frequent during the summer months and is favored

by the eating of unripe vegetables and fruits, drinking ice water, iced beverages, partaking of ice cream, exposure to wet and cold and to unhygienic surroundings.

Pathology.—There is no constant anatomical lesion nor has any specific micro-organism been determined. In some cases a catarrhal condition may be determined after death.

Symptoms.—These appear suddenly. The patient is taken with severe abdominal pains and vomiting. The vomited material may contain partially digested food, which later becomes mixed with bile and mucus. While the vomiting is in progress the abdominal pains become intense. The stools soon lose their fecal character and become serous, not unlike the "rice water" discharge of Asiatic cholera. There is coldness of the extremities and cold perspiration appears on the forehead. The rectal temperature shows an elevation of from one to seven degrees. The pulse is feeble and rapid, the face is pale, pinched and cyanotic. The urine is high colored and may contain albumin, is scanty and in severe cases anuria may be present. The thirst is extreme. There are cramps of the extremities and there is tenderness over the colon.

Differential Diagnosis.—This disease in some cases may closely simulate Asiatic cholera and can only be distinguished from the latter by a bacteriological examination of evacuations. Poisoning by arsenic, antimony and toadstools has been mistaken for cholera morbus.

Prognosis.—The disease is seldom fatal. It may continue from a few hours to a week, and be followed by a catarrhal condition of the intestines.

Treatment.—During the attack, the patient should remain in bed, if possible in a large, well-ventilated room, which should be kept clean. All gastric and intestinal discharges should be removed from the room at once. No food should be administered during the first twenty-four hours. The patient should not take much fluid during this time, even if the desire to do so is pronounced, as it increases the amount of fluid in the intestinal tract and increases the vomiting and diarrhea. To control the thirst, small pieces of ice may be held in the mouth, or small amounts of weak cold tea without sugar or cold oatmeal water may be allowed.

As the symptoms subside, cold mutton broth, pancreatized milk, whey, or half milk and tea may be allowed. Beef broth and beef tea, as well as coffee, are laxative, and should be withheld for a time. Gradually boiled rice or milk toast may be added. If the patient has been in the habit of taking stimulants, brandy well diluted with soda water may be allowed, or iced champagne used.

For those cases that are dependent upon the presence of indigestible substances in the stomach or intestinal canal means should be adopted to get rid of them as soon as possible. Lavage of the stomach or high rectal enemata are of service.

The second day, if the vomiting and diarrhea have ceased, the diet may be increased, and soft boiled or

poached eggs, raw oysters, scraped beef and crackers, toast, or well boiled rice may be allowed. If the condition has persisted for several days, greater care must be exercised in the care of the diet.

When the pain is severe, hot applications to the epigastrium, or over the right pneumogastric nerve in the side of the neck, are of service. Patients who are subject to these attacks, as a result of exposure, should wear a flannel bandage over the abdomen. If a large amount of the fluids of the body have been poured out and the cramps are excruciating, the introduction of saline hypodermoclysters are of service.

Arsenicum album is indicated in cases characterized by sudden and extreme prostration and collapse. The patient complains of severe burning distress in the region of the stomach. There is violent thirst for frequent but small quantities of water, which is immediately thrown up. There is great dyspnea and with it is an inexpressible anguish, weakened pulse, and a constant desire to move. The vomiting is violent, and is repeated as soon as the slightest material enters the stomach. The evacuations of the bowels are frequent, and are attended by excoriations of the skin and mucous membrane about the anus. The stools are dark, acrid and putrid, and cause a sensation of burning of the anus. There is coldness of the extremities, with exhaustion and trembling of the whole body.

Cuprum met. is indicated when there are violent cramps and spasms attending the attack. The cramps are most noticeable in the flexor muscles so

that they are drawn up into visible knots. The patient is restless, tosses about and is in constant uneasiness. The eyes are sunken and have blue rings about them, there is an intense coldness and blueness of the surface, with long continued general cold sweat, and great prostration. There is a deathly sensation, with nausea and vomiting of a greenish water, which is attended by a copious greenish diarrhea and violent pain in the bowels.

Dioscorea should be remembered when, accompanying the nausea and vomiting, there is a violent twisting colic which occurs in regular paroxysms with remissions. There are severe darting, writhing pains in the sacral region and bowels, which radiate upwards and downwards till the whole body, even the fingers and toes, are involved in the spasms, which cause the patient to shriek. The patient finds relief by standing and bending backward.

Euphorbium should be remembered when with the vomiting there are profuse evacuations of large amounts of ricewaterlike material and a sensation of faintness with a deathly sinking at the pit of the stomach, and a cold sweat.

Iris versicolor should be studied in those cases that appear during the hottest part of the summer, when there is present an icy cold tongue and a general coldness of the surface. Both the vomited substance and the stools show bile. There are violent attacks of vomiting of bile and of an extremely sour fluid, which excoriates the throat. There are severe eructations with abdominal pain accompanying the vomit-

ing. Before the stools there are severe pains in the abdomen with cutting in the lower part of the abdomen. During the stools there is severe tenesmus and a sensation of burning in the anus which continues after the stool.

Colchicum should be studied in painless cases that are characterized by a great prostration. The cases in which it is indicated often develop when the days are hot and the nights are cool. The stools are profuse and watery and appear to drain the patient dry. There may be severe tenesmus, and the patient falls asleep even on the vessel when the tenesmus ceases. There is violent vomiting which is preceded and followed by violent gagging.

Antimonium crudum should be studied in cases characterized by a milk-white tongue and a history of overloading of the stomach. There is no thirst. There is violent vomiting of bile or bitter slimy mucus which is renewed after taking food or drink. The vomiting continues after the nausea has ceased. The stools while watery contain hard lumps of fecal material. The attack may have been caused by acids, overheating, cold bathing, cold food, from summer heat or debauch. Before and during the stool there are cutting pains in the rectum, while following the stool there is a sensation as though the anus was excoriated.

Ipecacuanha.—When this remedy is indicated there is continuous nausea. It is indicated in the early history of the case and often requires another remedy to complete the cure. With the continuous nausea

and vomiting the tongue is clean, there is no thirst, and the patient loathes food. The stool consists of green mucus, "as green as grass." The face is pale, the pupils are dilated, there is a cold sweat upon the forehead and there are blue rings about the eyes.

Cinchona officinalis is indicated in cases that have not yielded promptly to treatment. The patient complains of great weakness, rapid exhaustion and emaciation, as a result of the prolonged loss of fluids. The stools vary in appearance. They are more frequent after meals and at night. There is tympanites with emissions of large quantities of flatus; and eructations which afford temporary relief.

Another remedy that should be remembered is *Croton tiglium* when the stool is yellow and watery in character, is expelled suddenly, "coming out like a shot," and there is aggravation from food, drink, or while nursing.

Gambogia should be remembered when the evacuation comes out all at once with a single, somewhat prolonged effort. This is followed by a sensation as though some irritating substance had been removed from the bowel.

Podophyllum is another remedy for the painless form when the stool appears to drain the patient.

Elaterium is indicated for the olive-green, frequent, copious discharges that follow exposure after exertion.

MUCOUS COLITIS.

Synonyms.—Mucous enteritis, Membranous colitis.

Definition.—This is a secretory neurosis characterized by colic-like abdominal pain, stools of peculiar consistency that may contain masses of mucus or pieces of membrane, and in some cases a membranous cast of a portion of the bowels.

Etiology.—It is most common among women (80 to 90 per cent.), and is an expression of a lithemic, hysterical, neurasthenic, or neuropathic constitution.

Pathology.—On inspection the mucosa is found evidently thickened, changed in color and covered with a rather tenacious mucus. The connective tissue is increased due to the inflammatory process. The lymphatic follicles are increased in size, the submucosa is increased in thickness and more or less vascular engorgement is noticed. In long drawn out cases hypertrophy or atrophy of the intestinal walls may result and occasionally a peculiar blood pigmentation is observed. Ulceration of the intestinal walls may result either as a simple solution of continuity or from a necrotic process. As a sequel to such process, submucous abscess may result followed by parietal adhesions and serious peritoneal and abdominal complications. The ulcerative process may be followed by cicatrization and resulting narrowing of the lumen of the bowel.

The microscope shows the stools to consist of fecal matter, mucus, epithelial and pus cells, and various micro-organisms. When the stools are washed the

residue often looks like boiled sago grains. The mucus may separate from the wall of the intestine without leaving any lesion.

Symptoms.—As a class these patients are thin, pale, poorly nourished and anemic. They are poor eaters and eliminate one article of food after another from their diet which they believe has distressed them. They suffer from severe occipital headaches and periods of mental depression. The nervous exhibitions vary in character and there may be present all forms of the hysterical stigmata. The attack may develop abruptly or insidiously. If developed abruptly, colic-like abdominal pains predominate and may be very severe. They are usually most severe in the epigastrium, in the left iliac fossa; occasionally the entire abdominal area is affected. The pain may extend to the bladder, genitals and even radiate to the legs, especially the left, accompanied by considerable tenesmus. While this false membrane of mucus is forming the symptoms are aggravated, but there is a cessation of pain for a period following its separation and passage. The pains may return several times a day, or may occur once a week or a month. Preceding the attack there is anorexia, constipation, a general nervous state and great mental depression. A condition of constipation or alternate diarrhea and constipation may be present. The pulse rate is not much disturbed and elevation of temperature is very rare. In less acute cases the stools are hard, the mucus is seen in large flakes or strings winding about the stool.

Diagnosis.—This is based upon the presence of the colic-like abdominal pain with the mucous passages from the bowels. It should be differentiated from perforation of the intestines and peritonitis. The membrane should be distinguished from tenia, undigested portions of vegetables and fibrous and elastic tissue of meat, sausage skins, fibrous diphtheritic shreds.

MUCOUS COLITIS.

1. The pain is diffused.
2. There is no evidence of air or fluid in the abdominal cavity.
3. The temperature may be elevated.
4. There is a history of a neurotic condition.

INTESTINAL PERFORATION.

1. The pain is localized.
2. There is usually evidence of air or fluid in the abdominal cavity.
3. The temperature may be subnormal.
4. There is a history of typhoid fever, tuberculosis or of a condition leading to ulceration.

MUCOUS COLITIS.

1. The history is of long duration.
2. Temperature usually normal or subnormal.
3. There may be some abdominal distension and sensitiveness.
4. Stools contain mucus and shreds of membrane.

PERITONITIS.

1. History of an acute condition.
2. Fever is present and is constant.
3. Abdominal distension and sensitiveness.
4. Do not contain mucus and shreds.

Prognosis.—The duration of the disease is indefinite, and while it is not fatal it often renders the subject an invalid for life.

Treatment.—Each case must be studied carefully and a treatment instituted that will meet the indi-

vidual case. In those patients who show a tendency to a neurotic state, hydrotherapy in the form of cool shower baths, sprays, spinal douches, a morning tub followed by thorough friction are beneficial. A salt glow is also of service in some cases. If a condition of enteroptosis is present this should be dealt with as indicated under that heading. In some cases a prolonged rest is beneficial, while in other cases a change of climate to a sea air or a bracing climate will assist in removing the neurasthenic state.

The diet should be one that contains those articles that will build up the system and at the same time there should be a large amount of coarse, indigestible particles as fresh vegetables, cereals and coarse bread, fruits, bran and such articles as have an excess of indigestible residue. Fats should also enter largely into the diet in the form of cream, butter, oils, nuts, bacon and fat meats. There should be an abundance of the food taken so that the walls of the intestine may be kept apart. To relieve the constipation, the diet and habits should be regulated and purgation avoided, and in some cases massage and electricity will be of service. In removing the mucus, there is nothing that equals irrigation of the bowels with warmed olive oil. The oil should be washed before it is used to remove the fatty acids. One pint of the oil should be injected slowly into the bowel by means of a tube which has been carried well up into the colon. Before using the oil the colon should be cleansed by an enema of at least two quarts of warm water, in which a drachm of sodium chloride or bicar-

bonate of soda has been dissolved. In some cases a solution of one drachm of fluid extract of hydrastis in the water has proven useful. This should, if possible, be retained for a short period, after which the oil should be introduced, and if possible be retained all night. If it is not retained, the quantity should be reduced. This treatment should be continued each night for one month, then every other night for a month, then twice a week for a time. Local applications of heat are of service in relieving the pain.

Antimonium crudum.—This remedy produces an excessive amount of mucus upon the intestinal mucous membrane. The digestion is interfered with and there is fermentation and belching. There is alternately constipation and diarrhea. The stools are often lumpy and accompanied with large quantities of mucus. The diarrhea is aggravated by acid drinks, cold bathing, and overheating. The great characteristic is the thick, milk white coating on the tongue.

Asarum Europeum in its proving has developed many symptoms similar to this condition, and has been a means of relief in several cases. The patient is nervous, and of an excitable or melancholic mood, and the least noise is unbearable. There is pain in the left side of the abdomen, that extends to the back in the region of the descending colon and is attended with large quantities of stringy mucus from the bowel that may form a large part of the stool. When the bowels become constipated there is headache.

Animonium muriate produces many symptoms corresponding to this disease. It should be remembered especially in those who are fat and sluggish, who have large fat bodies and thin legs. The bowels are obstinately constipated. The stools are hard and crumbling and it requires great effort to expel them. There is a large quantity of flatus. At times there is a discharge of mucus with pain in the left iliac region.

Nux vomica has served me well in irritable patients, with dark hair and bilious temperament, who are nervous, melancholic, and oversensitive to external impressions, and to whom trifling ailments are unbearable. There is frequent unsuccessful desire to pass small quantities of feces. In the spasms that attend these cases this remedy has served me well. In one severe case the 3x was of most service.

Hydrastis Canadensis produces a condition similar to mucous colitis. The patient is debilitated and suffers from marked derangement of the gastric and hepatic functions. The tongue is broad and shows the imprint of teeth. There are catarrhal discharges which are thick, yellow and stringy. I have employed it both as an enema, with one drachm to a pint of water, and also internally in the form of a coated pill, 2x.

Gold and Sodium chloride 2x is indicated in the neurotic cases where there is severe gastro-enteritis attended with convulsions, insomnia, constipation, and an increased secretion of mucus from the intestinal glands. There is dyspepsia with pain in the

region of the descending colon. The tongue is red and glazed. There is anorexia with extreme tenderness in the epigastric region. The patient is depressed and melancholy.

Colocynth is of service in some of these cases when the pain is severe, causing the patient to writhe. It is griping, cutting or squeezing in character, and causes the sufferer to bend double. There is relief from hard pressure and aggravation from eating and drinking.

Dioscorea villosa is also of service for the pain that accompanies some of these cases. There are griping pains in the abdomen which come at regular intervals, and are as though the intestines were grasped by a powerful hand. He is made worse by lying down and bending forward and is relieved by standing up and bending backward.

Graphites may be of service when the stools are hard, lumpy and are accompanied by discharges of shreds of mucus. There is a sensation of weight and uneasiness in the abdomen.

Magnesia phosphorica is of service in relieving the pains in thin, dark, emaciated individuals with highly developed organisms. The pains are sharp and cutting, coming and going, causing the patient to bend double. They are relieved by heat, by rubbing and by hard pressure.

DYSENTERY.

Synonyms.—Flux, Bloody flux.

Varieties.—Catarrhal, Amebic or Tropical, Chronic, Diphtheritic.

Definition.—This is an acute or chronic inflammation of the intestine, characterized by ulceration of the intestinal mucous membrane, frequent stools that are associated with pain and frequently contain mucus and blood.

Etiology.—It is most prevalent during the hotter months of the year and in the tropic and sub-tropic regions. It is found in those of all ages. Males on account of their occupations are more frequently affected than females. It is the great cause of death in armies, camp life, fleets and prisons. The most active causes are changes of weather, exposure, sudden falls of temperature at night, exposure to heavy rains and dews, bad hygiene, overcrowding, bad water, irregular meals, forced marches, and all conditions tending to lower the vital resistance.

No constant bacterium has been found in all cases of dysentery. The ameba dysenterica is associated with tropical dysentery.

Pathology.—While there are several varieties of dysentery, the changes characterizing one are common in another. In the catarrhal form, there is a congestive swelling and edema of the mucous membrane of the intestine, with petechial hemorrhages and follicular enlargement or ulcers. In the ulcerative tropical amebic form, the ulcers have a more or less irregular and ragged outline and undermine the membrane. The ulcer may be surrounded by a hemorrhagic infiltration. This form tends to become chronic, there is great thickening of the bowel and indolent ulcer results. The diphtheritic form is char-

acterized by the presence of a pseudo-membranous deposit in and upon the mucous membrane. This may cover the whole wall of the rectum and colon. It is a grayish or brownish color, and is more or less necrotic. In some cases the process is superficial, while in others it extends deep, and is known as gangrenous dysentery.

Symptoms.—The period of incubation is from three to eight days. During this time there is a loss of appetite, nausea, vomiting and possibly rumbling in the abdomen. The patient has a frequent desire to evacuate the bowels. This is attended with rectal tenesmus which in some cases is so severe that he may be unable to leave the bed pan. The discharge from the bowels may not exceed a tablespoonful. The tenesmus may be preceded by borborygmus and tormina. The anal orifice is retracted and spasmodically closed. When the intestinal contents reach the sphincter in the act of defecation there is excruciating pain.

The stool at first may be mixed with hard fecal masses, later it is thin. There is more or less mucus streaked with blood in the discharges, as well as shreds of mucous membrane that resemble boiled sago or frog spawn. Gradually the stools lose their fecal odor and acquire a stale odor and in purulent dysentery they contain pus.

In cases of necrotic dysentery the stools contain much blood and may resemble the water infusion of raw meat, or the rusty sputum of fibrous pneumonia. At times the stools have a blackened bloody appear-

ance and an offensive odor, and the term putrid dysentery is applied. With this septic symptoms appear and a rapid loss of flesh, and it is known as septic or adynamic dysentery. The amount of material discharged during the twenty-four hours may reach 1,000 C.C. It contains a very large percentage of albumin. The bodily temperature is but slightly elevated. The pulse is usually increased in frequency. The face becomes sunken and the eyes are surrounded by gray shadows. The tongue is usually coated and the breath may be fetid. Thirst is increased and the appetite is wanting. There is more or less eructation, nausea and vomiting.

The abdomen at first is distended, but gradually becomes retracted. There is tenderness in the course of the sigmoid flexure and on percussion a note of impaired resonance is yielded.

Diagnosis.—The catarrhal form is characterized by frequent stools composed of blood and mucus, and attended with tenesmus and fever. In the amebic form the course of the disease is slow, irregular and chronic, attended with remissions and exacerbations. The final test is the finding of the ameba in the stool. The chronic form is similar to a chronic diarrhea, but the tenesmus, bloody mucoid stools and tormina are characteristic. The diphtheritic form is shown by the membrane when a careful examination is made.

Differential Diagnosis.—Diarrhea has not the tenesmus nor the stools composed of mucus and blood which characterize dysentery. Manifestations of syph-

ilis, or cancer of the rectum, inflamed or strangulated hemorrhoids may produce the tenesmus, the bloody or mucoid discharges that simulate dysentery. But attention to the clinical history and a local examination should enable one to make a diagnosis.

Typhoid fever does not produce the early rise of temperature, nor the intestinal symptoms, nor the character of the stool that characterizes diphtheritic dysentery.

Prognosis.—In the catarrhal form this is favorable. The unfavorable symptoms are exhaustion, a dry tongue, a feeble and rapid pulse, delirium, stupor and evidence of collapse. In the amebic form, the mortality varies in epidemics; during campaigns in the tropics it may rise to 70 or 80 per cent., while in civil life, in the temperate zone, the death rate may be 5 to 6 per cent. In the diphtheritic form the prognosis is always unfavorable. The complications may be such as to render the prognosis grave, as stenosis and occlusion may occur after years have elapsed.

Complications and Sequelæ.—These may be either local or metastatic in character. The former are observed when the inflammatory process has extended so deeply into the mucous membrane of the intestine that the serous covering is implicated and a circumscribed or diffused peritonitis results. In some cases, intestinal perforation has occurred. In other cases the cellular tissue surrounding the rectum has become inflamed and periproctitis, and suppuration resulted with rupture and discharge of the pus into the rectum, or externally or in both directions, and an external, internal or a complete rectal fistula results.

Of the metastatic complications, hepatic abscess and polyarthrititis are the most common. Hepatic abscess is seldom recognized during the attack and may not be for weeks or months after the dysentery has subsided. The abscess may develop on the convex surface of the liver and in these cases the lung is implicated.

The polyarthrititis may resemble acute articular rheumatism, suppuration of the joint may take place, and a general septicemia with ankylosis result. Any viscus may become the seat of an inflammatory process. Neuritis and myelitis may develop as the sequelæ; intestinal stenosis, sensitiveness of the intestine and the ankylosis already mentioned.

Treatment. — When dysentery is epidemic the hygienic rules employed for the control of cholera should be observed. All water taken should be boiled and filtered. Fruits and vegetables should be cooked. The clothing should be such as will protect the body from rapid changes of temperature and humidity of the air. All dejecta should be promptly treated by germicides. The people should lead temperate lives and avoid all intoxicants.

During the attack the patient should be kept in bed in a large, well-ventilated room. He should not be allowed to rise even for the movement of the bowels. Hot fomentations should be applied over the abdomen to allay the pain. If there is pronounced pain turpentine stupes are of service. If constipation is present and the bowel is impacted with dry scybala, it should be thoroughly cleared by enemas. If this

is not convenient, some form of oil may be used, or a saline may be administered if the patient is in a condition to endure it.

The diet should be confined to those articles that are easily digested. In many cases predigested fluids are preferable, peptonized or pancreatinized milk, or whey, pressed meat juice. Should curds be found in the stools, the milk should be diluted or peptonized. It may be diluted with vichy water. Albumen water prepared by dissolving the white of an egg in a half pint of water is often borne well. It is not advisable to give a patient more than two to two and a half quarts of it in twenty-four hours.

As convalescence advances the diet must be cautiously increased. It should be such as is completely digested and leaves but little residue. Vegetables and fruits should be avoided, while well-boiled rice, junket, wine jelly, egg custard, blanc mange, dry toast, tender beef steak, roast beef, boiled and broiled chicken and fish should be taken cautiously; butter and cream should not be taken early. Infants if possible should be nursed; if not, they should receive milk and water which has been sterilized. Beef tea and mutton broth should be taken in moderation and the child should not be overfed.

Irrigation of the bowels is beneficial in many cases, as it assists in allaying the pain. Various solutions have been employed, as permanganate of potassium, eight grains to the quart; one-half of this is introduced and retained from one to two minutes. Should there be large quantities of mucus in the bowels, a pint of

luke-warm water, containing thirty grains of bicarbonate of sodium, may be introduced and allowed to remain a few minutes; following this a half pint or less of a solution of warm water containing ten to fifteen drops of tincture of *Hydrastis* may be introduced and allowed to remain.

In amebic dysentery, a solution of 1 to 5000 of quinine destroys the organism. It may be repeated three or four times a day. Corrosive sublimate, 1 to 3000, and nitrate of silver 30 grains to the quart, have been employed with benefit. But they should be used with great caution, if at all. Enemata of starch are of service, and some add one-half to one drachm of laudanum to the mixture. This latter should be given with caution, not at all in children, and seldom in adults.

Hydrogen peroxide, diluted from four to eight times with water, of this combination one quart may be injected twice a day.

Inflation of the rectum with carbonic acid gas assists in relieving the tenesmus and in controlling the inflammation.

In cases accompanied by gangrene, injections are dangerous, as they may cause a perforation of an already injured intestine.

In cases of chronic dysentery, the patient should remain in bed. The diet should consist mainly of milk, of which from two and a quarter to three quarts may be taken. In mild cases, crackers, zwieback, dry toast, egg albumen, chicken, roast beef or rare steak may be substituted for a part of the milk. If

there is much ulceration of the colon, the diet should be confined to peptonized or boiled milk. In all these cases the stools should be examined from time to time and if found to contain undigested milk curds, meat, mucus or oil globules, a diet of egg albumen, beef juice, peptonized or pancreatinized milk should be adhered to and a solid diet should be returned to very carefully.

Mercurius corrosivus.—In its proving this agent shows many of the symptoms as well as the lesions that characterize the severer form of dysentery. It is indicated when the usual symptoms are intensified, and the strength of the patient is failing. There is severe pain, the stools are scanty, consist chiefly of blood and mucus, contains shred of mucous membrane and there is present a constant tenesmus with great tormina that the passage of the stool does not relieve. The urine is scanty, and there may be great tenesmus vesicæ with burning in the urethra. The face and hands are cold, the pulse is feeble and there is trembling of the limbs.

Mercurius solubilis or *vivus*.—One of these preparations should be studied in those cases of diarrhea where there is tendency to dysentery. It is useful in the dysentery of children and in cases where there is not the great amount of blood and less pain than that which characterizes the corrosivus.

Colocynth should be remembered when there are severe agonizing pains in the abdomen, with intense cutting, squeezing pains which cause the patient to bend double. The pain is relieved by pressure and

bending double and is made worse by eating and drinking. The pain may extend to the hips and down the thighs. The stools are at first watery and mucous, then bilious, and later bloody.

Baptisia should be studied in cases that assume the typhoid type. The stools may consist of pure blood or they may be dark, thin, and fecal in character. Whatever the character of the stool, it is horribly offensive. There is colic before and during the stool, and relief of it after stool, while the tenesmus is during and following the stool. The patient's face is dark red, and presents a besotted look. The tongue has a yellow brown coating in the center with red, shining edges. The patient complains of a bruised, sore feeling over the whole body which causes restlessness. The patient frequently complains of not being able to sleep on account of a sensation as though the body were scattered about the bed, and causes him to toss about.

Podophyllum should be studied when there is present a stool consisting of glairy blood with violent tenesmus, griping pain and nausea before the stool and pain in the back. The tenesmus soon leads to prolapsus of the rectum.

Rheum is often indicated at the onset of the attack and again at the close, when there is cutting pain and rumbling in the bowels. The stools are fecal, soft, have a strong, sour odor and contain but little mucus. One drop of the tincture every two hours is of service.

Magnesia sulph. ix is indicated early, when the stools are copious and watery. There is rumbling

and distension of the abdomen. The cause of the attack is usually a sudden change of the temperature.

Aloes will be found occasionally indicated when the abdomen is tender to pressure and there is a sensation as though it was greatly distended. The stools are scanty, watery, bloody, jelly like, and are attended with severe tenesmus which forces the hemorrhoidal vessels out. They are large, tender, but are relieved by cold applications.

Ipecacuanha is employed in massive doses in treatment of tropical epidemic dysentery. It is indicated when the constant nausea and vomiting are the great characteristics. There is great tenesmus, the stools are dark green or frothy like molasses, and may contain blood.

CARCINOMA OF THE INTESTINE.

Etiology.—This is comparatively rare. It is a disease of advanced life, only rarely does it appear before the fortieth year. It occurs more commonly in men than in women and has been known in a few cases to develop from an ulcer of the intestine.

Pathology.—It is almost always primary; secondary carcinoma of the intestine is rare. While it may occur in any part of the intestine, its most common seat is the large intestine, especially the rectum and the flexures of the bowels as at the hepatic, splenic and sigmoid flexures, and the duodenum and cecum. It is very rare in the small intestine. Its frequency at these points is supposed to be due to the mechanical irritation of the advancing column of

fecal matter. Its most common form is the annular variety.

According as the tissue is dense and deficient in fluid of a medullary consistency, or traversed by cavities with gelatinous contents, a distinction is made between scirrhus, medullary and alveolar carcinoma.

On account of the ulceration from disintegration of the mass, hemorrhage and perforation of the bowel are liable to occur. Should the ulcer undergo cicatrization, stenosis of the bowel may result, and dilation of the intestine occur above the position of the new growth. In the small intestine, the cylindrical celled epithelioma or adeno-carcinoma is most common, and is located in the duodenum. In the colon it is usually the cylindrical celled epithelioma that is met with, while in the rectum the colloid scirrhus and soft carcinoma as well as the squamous celled epithelioma develops.

Symptoms.—These are not definite. The disease occurs late in life and is attended with progressive emaciation and the development of a cancerous cachexia. But there may be an absence of symptoms until a sudden obstruction of the bowel occurs. The symptoms vary somewhat with the position of the carcinoma and the direction of the growth. In the majority of the cases there are irregular paroxysms of pain in the abdomen, with nausea and vomiting. If the small intestines are involved, the tumor may be detected. This is best accomplished after having first cleansed the colon of all fecal matter with a

large enema, and then placing the patient on his hands and knees and palpating the abdomen while he is in this position. If the cecum or the sigmoid flexure is the seat of the disease, the tumor can usually be felt. Wherever located, the tumor is tender, movable if in the small intestine, and fixed if in the cecum or sigmoid flexure, and is usually in the axis of the intestine. If the tumor is in the rectum, or the lower portion of the sigmoid flexure, it may be palpated in the rectum, or it may be seen through a proctoscope with the patient in the knee chest position. If it is over the aorta it may appear to pulsate. Constipation may alternate with diarrhea. The stools are frequently ribbon or pencil shaped if the growth is in the rectum, or they may pass in scybalous masses and there may be blood with the stool, while later there is pus, mucus and sometimes masses resembling cancerous tissue. If the growth is in the rectum there may be great difficulty in defecating, which is attended with severe pain. This pain, in time, becomes constant and radiates to the hips and genital organs.

Diagnosis.—This is based upon the general symptoms of cancer in a patient past forty. The presence of a tumor, the occurrence of constipation leading to complete obstruction, or constipation alternating with diarrhea, with blood and fetid pus in the stools, and the altered shape of the stools, are of importance. Sanious pus or muco-pus from the bowel appears only in intestinal cancer, ulcerative colitis and as the result of the rupture of an abscess into the lumen of

the bowel. Digital examination of the rectum should be made in all cases.

This condition should be differentiated from fecal impaction, tumor of intussusception, pyloric tumor, cancer of the head of the pancreas, distention or carcinoma of the gall-bladder, movable kidney, chronic appendicitis and lacing liver.

Prognosis.—This is unfavorable, for if an operation prolongs the life of the patient recurrence or metastasis occurs as a rule sooner or later.

Complications.—These are cancerous peritonitis, diffuse peritonitis dependent upon perforation of the intestines, embolism of the pulmonary artery, cellulitis, pyemia, rupture of the intestine from accumulated feces and hydronephrosis from involvement of the ureters.

Treatment.—As a cure is impossible in these cases they should be submitted to a surgical operation at as early a date as possible. The patient should be thoroughly nourished. He should be kept at rest and have a highly nutritious and easily digested diet, as milk, eggs, fish, finely minced chicken or mutton, in small quantities. The constipation may be relieved for a time at least by the use of an oil enema.

The importance of early surgical interference should be remembered.

BENIGN TUMORS OF THE INTESTINES.

Of these adenoma are the most common. They vary in size, and are situated immediately above the anus in the rectum. They are observed frequently

ulcerated and hemorrhages may take place. They not infrequently terminate in true carcinoma.

Papillomata occur near the end of the rectum and the lower part of the ileum.

Of the connective tissue tumors fibromata and lipomata are the most common. They may be single or multiple and vary in size from that of a pea to that of a large apple. While they are most common in the rectum they may appear in any portion of the intestinal tract.

Myomata and fibromyomata are common, while anginomata are rare.

Symptoms.—The symptoms attending benign tumors are not characteristic and may be absent unless the tumor is large. Enterorrhagia may occur and is common in angioma, but may take place with other growths. Symptoms of obstruction may appear, and the tumor may be a cause of death from hemorrhage, obstruction, or invagination. Carcinomatous changes may occur in the epithelial type of tumors.

Diagnosis.—This is not always easy. In doubtful cases the use of an anesthetic assists.

Treatment.—This consists in relieving the obstruction and controlling the hemorrhage.

DISAPPEARING TUMORS.

It should be remembered that in spite of skilful clinical observation the ultimate behavior of a tumor is seldom to be determined except by microscopical examination, and that many seemingly malignant

neoplasms are found upon such an examination to be but the outcome of an inflammatory condition. In many cases we must look to an acute or chronic inflammatory process for an explanation of the appearance and disappearance of these masses of tissue, which before and even during exploration appear to be actual new growths. It is probable that no neoplasm, malignant in nature, ever disappears, except as a result of retrograde changes induced in it through affections and infections of the tumor tissue, or other parts of the body, having by reason of the toxins the same effect.

The phantom tumor is the result of muscular contraction. They come and go apparently without method. While they are usually painless, they are frequently a source of discomfort. Their characteristics are uniform. They are hard, smooth, resistant and in shape conform to the muscle or muscles involved. They may or may not disappear during sleep, but always do so under a profound anesthetic.

The causes leading to their presence are irritation of the skin or of other superficial parts immediately over the course of the nerves which supply them. They may be dependent upon an underlying diseased organ. In certain cases they are dependent upon occupations, when they are termed "occupation phantoms."

In neurotic subjects it may be a desire to imitate the complaints of others, "the nervous mimicry of disease," and in such cases are known as "imitative phantoms." This is the type of tumors removed by

certain cults. They will be found to disappear gradually under an anesthetic.

The treatment is the removal of the source of the irritation, if it can be determined. Occupation phantoms are usually relieved by rest. It is seldom that a change of occupation is demanded. Imitative phantoms require the removal of the patient from association with the truly afflicted one, and such suggestions and general treatment as will overcome the unstable mental and neurotic condition. In many cases the use of electricity, massage and hydrotherapy are of service.

ROUND ULCER OF THE DUODENUM.

This is not as rare as supposed. Its development, manifestation, and treatment coincides with a similar ulcer of the stomach.

Etiology.—Its cause is not known, but is supposed to be the result of the traumatism, embolism, thrombosis, and of the digestive activity of the gastric juice acting upon a point in which local stagnation has taken place in the blood-vessels of the mucous membrane. They have been known to develop following burns and erysipelas.

Pathology.—The lesion may be single or multiple. There is a sharply circumscribed loss of tissue in the mucous membrane of the duodenum. They are always found in that portion of the duodenum above the choledochus duct. Below this point the acidity of the gastric juice is neutralized by the intestinal and pancreatic secretions. Perforation is more frequent in this form of ulcer than in gastric ulcer.

Symptoms.—They are more common in men than women. The pain is in the right upper quadrant of the abdomen, and commences from two to four hours after the meal, whereas the pain due to gastric ulcer commences immediately upon the ingestion of food. The hemorrhage attending this ulcer gives rise to bloody stools but seldom to hematemesis.

Complications and Sequelæ.—The ulcer may perforate the intestinal wall and a perforative peritonitis result. Should cicatrization of the ulcer take place, cicatricial stenosis of the duodenum may result and above this a dilatation of the duodenum, stomach, and even the esophagus may form.

Diagnosis.—This is based on the symptoms as outlined.

Prognosis.—This is grave. The ulcer may develop insidiously and give rise to an uncontrollable hemorrhage or to perforative peritonitis.

Treatment.—This is similar to that of gastric ulcer. In perforation of a duodenal ulcer the fluid passes down into the right iliac fossa and produces the symptoms of acute appendicitis. Immediate surgical attention and complete rest of the stomach are essential.

SYPHILITIC ULCER OF THE INTESTINE.

This is rare when one considers the frequency of lues. It is most frequently seen in the rectum a short distance from the anus. It is shallow, has a smooth base and may be primary, secondary or tertiary, the latter the result of a gumma. In healing it produces stricture, which is frequently very hard to overcome.

The treatment is that of constitutional syphilis, together with the management of the local lesion.

Mercurius iodatus ruber prepared in the form of an ointment and applied to the ulcer by means of a rectal speculum is of service, and especially if it is the indicated remedy.

Mercurius corrosivus is a remedy that is frequently of service, especially if the ulcer assumes the phagedenic form.

EMBOLIC ULCER OF THE INTESTINE.

This is infrequent and difficult to diagnose. It occurs in those with valvular endocarditis, arteriosclerosis, pyemia and multiple neuritis and other conditions in which an embolism may lodge in the artery of the intestine. Following this, necrosis of the tissue and ulceration takes place.

If there is pain local applications of heat and hot compresses covered with oiled silk, to retain the heat, are of service. The patient should remain in bed and a bland diet be administered. Such remedies should be given as the case demands.

TUBERCULOUS ULCERATION OF THE INTESTINE.

Tuberculosis is second to enteric fever as the cause of intestinal ulceration. The tubercle bacilli are conveyed to the intestinal tract by swallowing infected sputum, food or drinks or by placing infected articles in the mouth.

Pathology.—The changes in the tissue consist of a simple exudative inflammation, suppuration, granula-

tion and caseation. While any portion of the intestinal tract may be the seat of the infection it is most common in the lower part of the small intestine, the upper part of the colon, in the region of the ileocecal valve and in the rectum.

Symptoms.—These are diarrhea (the stool may contain pus and blood), loss of flesh and strength, hectic temperature, abdominal tenderness and enlarged glands. Occasionally tubercle bacilli may be demonstrated in the feces. Perforation of the intestine seldom occurs.

Treatment.—In many of these cases the patient should be kept in bed and the diet should be carefully regulated. It should be highly nutritious and yet non-irritating. In many cases warmed milk should form a large part of it. Starch in the form of well-toasted bread is usually well borne. Stewed macaroni or vermicelli prepared without cheese is of service. Soups and broths that have been strained, cooled, and the fats skimmed off, and the soup then heated, are well borne by the stomach. The general management of the cases is similar to that of intestinal catarrh.

SPLANCHNOPTOSIS.

Synonyms.—Enteroptosis, abdominal relaxation, drooping of the viscera, and Glenard's disease.

Definition.—It is a general term applied to the drooping or sagging of the various abdominal viscera; it embraces a drooping of the stomach (gastroptosis), of the intestines (enteroptosis), of the kidney (neph-

roptosis), of the liver (hepatoptosis), and occasionally of the spleen (splenoptosis).

Etiology.—It is more common among women than men, and is responsible for a large percentage of the nervous disorders of the former, hitherto attributed to diseases of the uterus and its appendages. It is dependent on a variety of causes, all of which may not be operative in any one case. In nearly all cases, however, there is a general neurasthenic relaxation.

The etiological factors may be primarily divided into those which are intra-abdominal and congenital in origin, and those that are acquired. The former is associated with kyphosis, paralytic thorax, a general lowering of the physiological condition. In some cases a hereditary predisposition is present.

In certain cases there is a congenital weakness of the ligaments and as a result stretching with ptosis ensues. This is especially true of abdominal relaxation. The condition may remain latent while the abdominal walls are sufficient to support the enclosed viscera, but it at once becomes apparent when the external support is removed and the tension upon the ligaments is increased. The strength of these ligaments is always just sufficient to control the movements of the various organs.

The acquired cases may be dependent upon an increased pressure, the result of constriction about the waist from corsets or tight waist bands; relaxation of the anterior abdominal walls; high heeled shoes, together with considerable clothing about the hips, are responsible for the floating kidney, which is so fre-

quently the starting point in these cases. Repeated pregnancies, the lack of care during the puerperium, induce a flabby condition of the abdominal walls and thus deprive the viscera of a natural support. The separation of the recti muscles, the assuming of the erect posture too soon following laparotomy, the removal of ascites, or any condition that results in a general muscular relaxation, or the absorption of the fat from the abdominal cavity are responsible for cases. Traumatism, toxic influences, nervous or emotional shocks may assist in producing this condition. It frequently develops following exhausting diseases as pneumonia or typhoid fever. It is often recognized following the later stages of phthisis when the emaciation, muscular relaxation and subnutrition favor its development. It may be dependent upon omental adhesions in or about the pelvis. Some observers have endeavored to find the cause of this disease in a floating tenth rib.

Pathology.—In the majority of these cases the first apparent change is relaxation of the anterior abdominal walls and loss of support. Following the law of gravitation there is a sagging of the viscera. In many cases this is first noticeable of the right kidney, and results from the inherent flabbiness of the ligaments and other structures. The displacement is assisted by pressure from the liver. The descent of the duodenum is favored by the relaxation of the duodeno-renal ligament. As the result of the descent there is an interference with the function of the latter, so that the passage of material from the stomach to

the duodenum is impeded. It is not long before the stomach is affected and atony results. The ascending colon is impinged upon; its peristalsis is interfered with and stagnation (obstipation) of its contents results. The superior mesenteric artery crosses the duodeno-jejunal junction at the second lumbar vertebra and may impinge on the bowels, causing dilatation of the duodenum and stomach, aiding in their displacement downward.

In other cases, the first changes are observed in the ascending and then the transverse colon. These produce a traction upon the pylorus and omentum, which causes a descent of the stomach and liver. The sagging of the curve of the colon produces a traction upon the parietal peritoneum, which favors a sinking of the right kidney. There have been three theories advanced to explain the pathology of this disease. First, the mechanical, which attributes all the changes to a weakness of the colo-hepatic ligament; the second, the neuro-mechanical, which has for its basis an irritation and stimulation of the sympathetic nerves, together with an involvement of the blood-forming organs; the third attributes the whole derangement to a defect of the trophic ganglia.

Symptoms.—In some cases a physical examination will reveal this condition without any symptoms having been complained of that would suggest it. This, however, is not a rule, as the patient usually complains of digestive disturbances, of a dragging pain in the abdomen just below the epigastrium, and of a sensation of weight and fulness in the umbilical and

hypogastric region. This is relieved during the early stages of its development by assuming a recumbent posture or by supporting the lower portion of the abdomen. Flatulence is present. The bowels are frequently constipated, but a condition of constipation may alternate with one of diarrhea. Frequent micturition is often a distressing symptom as a result of the pressure of the abdominal viscera upon the bladder. As the case advances, the patient complains of extreme weakness after slight exertion, and during the morning after rising. Upon inspection, with the patient in the standing posture, the epigastrium is observed to be flattened, while there is a round protuberance below the umbilicus. This protuberance is not present in those who are emaciated, nor in those with flattened abdominal walls. The pulsation of the aorta is plainly observed when the stomach has descended and the firm transverse outline of the pancreas is readily recognized.

Glenard's test for the presence of this condition is made by having the patient stand. The physician occupies a position behind the patient and carries the hands around the body and places them upon the abdomen, between the symphysis and the umbilicus, and presses the abdomen upwards and backwards. The patient expresses a feeling of relief from the support. Should the hands be suddenly removed, pain is complained of; a sudden jolt or jar from walking also causes pain. Splashing sounds in the stomach are a reliable sign of the condition in the majority of cases. They are produced by gently tapping the ab-

dominal walls over the region of the stomach and result from the atonic condition of the stomach, which contains fluid and air. If the sounds cannot be obtained, the patient should drink a glass of water, after which they are usually elicited. If they are present only during normal digestion, the inference is that it is a case of simple atony; if they are produced after the allotted period for digestion to be completed there is motor insufficiency; but if they are present the following morning, after a night of fasting and before anything has been introduced into the stomach, ectasia or stagnation is present. A distended condition of the intestines should not be mistaken for an atonic stomach.

• The inflation of the stomach, either by means of carbon dioxide gas, or the stomach tube with a rubber bulb, is of service in rendering its position visible to inspection. The first method is accomplished by administering to the patient in the recumbent position a half glass of water in which a drachm of the bicarbonate of soda is dissolved; this is followed by another half glass of water in which thirty grains of tartaric acid has been dissolved. The amount of the chemicals seldom produces any alarming symptoms. If the quantity of the chemicals employed is too small, the stomach will not become distended and visible. In other cases, the gas escapes through the cardiac or pyloric orifice. A few cases have been reported in which this method has proved injurious, but if it is used with due precaution this is not liable to occur. It is contraindicated in cases associated

with heart disease, gastric hemorrhage, ulcer, cancer, intestinal obstruction or in cases complicated by peritonitis. The examination should be made at once by auscultatory percussion, as the gas escapes quickly. When the stomach tube and bulb are employed, the stomach should be first emptied by lavage, the tube should then be introduced with the patient in the sitting posture. He should then recline and the inflation be carried out. The first few squeezes of the bulb should be given rapidly, that closure of the pylorus may take place.

In some cases the stomach may be outlined by inspection. The patient is placed in the reclining posture, all lights are excluded except those from the foot of the patient. The physician now stands at the shoulder of the patient and stoops till his eye is on a level with the chest and abdomen. During respiration, transverse lines are to be seen moving up and down the abdomen, which indicates the greater and lesser curvature of the stomach. If the stomach is markedly prolapsed the lines are not as distinct. In doubtful cases the gastro-diaphane may be employed. The stomach being empty the patient drinks a glass of water; the lamp is then introduced and the outline of the stomach is seen by the red glow on the abdomen.

The stomach may descend till the greater curvature is at the umbilicus or as low as the symphysis. In other cases, the cardiac end is in situ while the pyloric end has descended, become dilated, and distorted in shape, and the whole organ is to the left of the median

line, as the result of the displacement, motor insufficiency and dilatation results. The solid organs can be palpated; the liver should be examined when the patient is in the standing posture. In the female the uterus is low and usually retroflexed.

Diagnosis.—This is based upon the existence of the symptoms enumerated and the physical findings of the case; the hollow epigastrium, the prominence of the two lower quadrants of the abdomen, the demonstration of a displacement downward of the lesser curvature of the stomach, the recognition of a displaced liver. The latter is most prominent in the epigastrium, when the patient is in the standing posture. The careful inflation of the colon shows it to be displaced also, and the patient finds relief when the abdomen is supported.

Prognosis.—A proportion of these cases recover when placed under favorable conditions and lose all the symptoms and signs of the disease. In a percentage of the cases, the annoying symptoms disappear, but the ptosis partially remains. A small percentage of them are fatal, the result of exhaustion and auto-intoxication.

Treatment.—In the management of these cases prophylaxis should be exercised. Tight lacing and all tight bands about the waist should be prohibited. Health corsets that in no way interfere with the normal development and function of the muscles in the waist line should be worn. The corsets should be such that the weight of the clothing is supported by the shoulders.

Precautions should be exercised following pregnancy and abdominal operations, that the patient is not allowed to be up too early. If corsets are worn at all, it should not be for some time following these events.

The patient should rest upon the back for at least one hour following each meal. During this time the clothing should be loosened. Absolute rest in bed for several weeks is of service in those cases where neurasthenia is a prominent factor. But in general more is to be gained from outdoor exercise and an avoidance of the mental depression that follows confinement to bed. The diet should be carefully regulated. Small and frequent meals are preferable to a large amount at longer intervals. The food should be such as is easily digested and adapted to the gastric condition of individual cases. It should be such as is easily rendered fluid and pass readily into the duodenum through the partially occluded pylorus. The character of the diet must also depend upon the amount of hydrochloric acid present and whether gastric dilatation complicates the ptosis. All fried foods, condiments and sweets should be forbidden. The amount of fluid consumed with the meal should be limited to from eight to ten ounces, as in this way the stomach is relieved of some of its burden and is enabled to empty itself more easily. A milk diet is not well borne in many cases. The patient should have regular hours for sleeping in apartments which are well ventilated. Mental and physical strain should be avoided.

General massage is of service in assisting the circulation, improving the nutrition, and in relieving nervousness. Local massage of the abdomen is seldom of any service, but swimming and such exercises as will bring the abdominal muscles into action and strengthen them are of value. Gastric lavage is not of any service unless there is a considerable amount of dilatation and retention present.

The Scottish douche over the abdomen is often of great service. This consists of the alternating of a warm current of water 95 degrees, with a cold or cool one 55 degrees, every few seconds for a period of several minutes.

In addition to these measures that give tone to the abdominal muscles, a support is a necessity in the majority of cases. An ordinary bandage does not give the desired results except where there is obesity. In lean subjects, and the majority of these patients come under that class, the oxide of zinc adhesive plaster gives the best results. There are three pieces required. The first or large one is applied to the abdomen, having been first trimmed so that it does not include the crest of the ilium. It should be first applied in the line of the symphysis and then drawn well upwards that the viscera may be raised by it. The narrow ends should be carried around the body between the ilium and the short ribs. The second piece is applied firmly in one of the inguinal and iliac regions and is carried diagonally across the abdomen and passed between the crest of the ilium and the short ribs covering the tail of the first piece; the third

piece is applied in the opposite direction to the second. In some cases the straps become loosened along the line of the symphysis, and when this is the case it may be necessary to support it by strips of plaster along the lower border.

Remedies are of service in assisting to relieve the neurasthenia, gastric, and other symptoms which arise, but of themselves have but little or no effect in changing the position of the organs.

Picric acid is of service in these cases when the patient complains of exhaustion and is "so tired." Every attempt to perform mental labor results in a severe throbbing headache.

Phosphoric acid is to be studied when the patient is unable to perform any mental labor "as it exhausts her." There is weakness and burning of the spine. The hair turns gray early and falls out. Phosphorus should be compared with the last mentioned remedy.

Nux vomica is of service when the patient is easily fatigued in both body and mind, and must lie down he is so easily fatigued. He is worse from mental exertion, from being up late at night, and is relieved by rest and sleep. In certain cases when desired result is not obtained from *Nux vomica*, *Strychnia* in some form often gives beneficial results.

Ignatia is of service where there is a tendency to hysteria. There is a sensation of sinking in the epigastrium and a craving for all forms of indigestible articles of food.

Coca should be remembered where there is a general atony of the system. There is an atonic dyspepsia

and weakness of the heart. The patient cannot eat, sleep, or perform any labor because he is so weak. It should be employed in physiological doses.

China is of service when anemia is a prominent factor and is dependent upon a loss of vital fluid. The patient is low spirited and irritable. The appetite is good and yet emaciation is going on continuously. The spine is sensitive and there are throbbing, hammering headaches dependent upon the anemia.

When surgery is undertaken in these cases, it should be complete in every detail. The liver and kidney should be sutured, the gastro-hepatic omentum shortened, the transverse colon fixed, and the abdominal wall reconstructed.

Patients in whom the neurasthenic element is pronounced are seldom benefited by surgical measures.

GASTRO-INTESTINAL TOXEMIA.

Synonyms.—Intestinal intoxication, systemic intoxication.

Definition.—This is a systemic toxemia produced by poisons formed within and absorbed from the gastro-intestinal tract. It may be acute or chronic.

Etiology.—Constipation is a frequent predisposing cause of both the acute and chronic forms. An excess of food which may be indigestible or has already undergone fermentation is also an active cause. A lack of fresh air and exercise and individual peculiarities are also causal factors. Toxic agents developed within the body, the result of defective elimina-

tion or faulty cell metabolism, are prominent in the etiology.

Pathology.—While the contents of the intestinal tract are naturally toxic, yet this toxicity is increased by bacterial fermentation of food while albumen and nuclein may produce profound systemic toxemia. The changes in these two substances are the result of the action of enzymes or bacteria. The poisons produced by bacteria in the intestinal tract may be derived from three sources. The components of dead bacteria may furnish proteins, some of which are poisonous, living bacteria in the intestinal canal may excrete ferments which produce profound nervous symptoms and intestinal toxemia ; still another source is found to be the substances produced by the bacteria from the culture media, such as the ptomaines, the virulence of which depends upon the micro-organisms which produce them and the food material upon which they have been cultivated. Other substances that may produce this condition are indol, skatol, etc. Dilatation of the stomach and drooping of the viscera comprising the gastro-intestinal canal may be responsible for it.

Owing to the great irritability and the immaturity of the nervous system in children, intestinal toxemia is responsible for many of the disturbances that affect infants and children. A small amount of poisonous material will produce fever and convulsions. This condition is responsible for many of the ills of certain children. Chronic intestinal toxemia is produced by the same poisons that produce the acute form, but it

is absorbed in smaller quantities and over a much longer period of time.

Symptoms.—These differ in various cases. The patient is usually anemic and malnutrition is apparent. Headaches of a toxic character are complained of, as well as malaise, mental depression, restlessness at night, incontinence of urine, buzzing in the ears, disturbance of the sight and vertigo. The reflexes are exaggerated, and nervous symptoms as hyperesthesia, paresthesia, psychoses, convulsive disturbances are present. The urine contains an excess of indican, calcium oxalate, uric acid and ethereal sulphates. Meteorism and tympanites are present and there are eructations which are preceded by a burning sensation in the stomach, in the esophagus and pharynx. In nearly all these cases pyorrhea alveolaris is present. Acid vomiting may occur. The acidity is more frequently dependent upon acetic acid than upon hydrochloric acid. On account of the acidity of the intestinal contents irritating the mucous membrane, diarrhea results or constipation and diarrhea may alternate. Examination of the colon will show it to be distended with fecal material.

Diagnosis.—This is based on a composite clinical picture of which the following are the principal parts: Rigg's disease, various forms of stomach trouble, and changes in the functional activity of colon and retention of feces. The presence of indican in the urine, together with calcium oxalates, uric acid and urates, frequent headaches of a toxic character, cardiovascular changes due either to neurosis or myo-

cardial changes. Many of these patients have gouty joints or the muscular symptoms and skin lesions of gout.

Prognosis.—In acute cases this may be the cause of death. In chronic cases it may be difficult to control the condition perfectly and permanently, yet the patient may survive many years.

Treatment.—Prophylactic treatment is of the greatest service in this class of cases. In all cases of normal digestion, toxic bodies as albumoses and leucomaines are formed within the intestinal canal, and are introduced into the circulation.

The acute form is observed in what is known as "bilious attacks" or migraine. Prolonged constipation favors these conditions and it should be avoided. During the period that the bowels are constipated the diet should be selected. Fluid should be taken in large quantities. Meat should be withheld, as it is the albuminoids that cause the trouble. Both in adults and in children the bowels should be thoroughly cleaned out by means of oil and water enemata. This with plenty of water to flush the system is usually enough to prevent an attack. The skin should be kept active. In Rigg's disease, decayed teeth that are present in such a large percentage of these cases should be repaired. The patient should be taught to eat slowly and to masticate all food thoroughly. In many of these cases the diet consists of fine articles of food that are nearly all assimilated, and to this should be added articles that are mechanically mildly irritating, as oatmeal and corn meal.

In the chronic form vegetables should enter largely into the diet. In some cases it will be found that the vegetables alone produce gastric disturbances and an excess of adipose tissue and changes in the blood. It is therefore advisable to add to the vegetable diet milk and eggs, and at times meat may be allowed once a day. Of the meats, beef, mutton, chicken and bacon may be first allowed, while veal, fresh pork, etc., should be omitted. Russian or Turkish baths are of service. Deep breathing exercises by general or local breathing are beneficial.

Patients with chronic intestinal auto-intoxication should take daily exercise. In some cases violent exercise at the start is injurious. They should spend much time in the open air. Their sleeping apartments should be thoroughly ventilated during the night.

Hydrastis Canadensis.—This remedy should be studied in those cases in which there is evidence of an atonic condition and deficient assimilation of food, and as a result the patient is anemic and complains of fatigue. The natural secretions of the mucous surfaces are increased and are abnormal both in quantity and quality. At first they are clear, white, transparent and tenacious, but they become yellow or a thick green, and even bloody. The tongue is large, flabby and presents a slimy appearance. There is a dull aching pain referred to the region of the stomach, a sensation of weakness and emptiness. The bowels are constipated and there is usually a history of cathartics having been employed.

Baptisia is frequently indicated in cases in which there are evidences of a septic condition of the intestinal tract. The patient complains of a stupefying headache, with confusion of ideas. They complain of great weakness and a sensation of soreness over the body. The breath is offensive. The intestinal gas is offensive, and the patient recognizes that when the flatus is not passed readily he becomes weak and exhausted, as if poisoned.

Acidum carbolicum should be studied when the bowels are inactive, or there is an alternate diarrhea and constipation, and there are emissions of putrid flatus and the stools are extremely fetid. The breath is offensive. The patient complains much of the time of dull frontal headache and of a sensation of a band about the head. The tongue is coated and there are constant eructations and rumbling of gas in the abdomen. Palpation reveals a tenderness over the colon. He complains of various nervous sensations and a profound prostration, while at times the surface of the body is covered with a cold perspiration.

Iris versicolor should be studied in cases in which the patient complains of a dull heavy headache. It begins with a blur before the eyes and it may be conveyed to the forehead, or it may extend to one or both of the temples, but usually the right. Occasionally it is throbbing or hammering in character. It is attended with nausea at times, vomiting of sour, bilious material. The patient complains of a putrid taste. There are rumbling and indications of large quantities of gas in the intestines. The patient complains of great debility.

Psorinum should be studied in those cases in which the well-selected remedy does not afford the desired relief, or when they have not fully recovered from an acute disease. The patient is continually chilly. There are foul odors from the body. He is easily exhausted, and the stools and flatus are extremely offensive.

ENTERALGIA.

Synonym.—Intestinal colic.

Definition.—This is an intestinal pain that occurs independently of any recognized anatomical lesion of the intestine.

Etiology.—This is observed especially in anemic, hysteric, neurasthenic patients when subjected to severe mental strain, anxiety, and violent emotions. Tabetic patients are subject to attacks of severe intestinal pain known as "intestinal crises." Toxic influences that result from lead and copper produce severe intestinal pain, as do gout, intestinal worms, fecal accumulations, gaseous accumulations and indulgence in certain kinds of foods. Reflex intestinal pains may have their origin in diseases of the uterus, kidneys and liver, while peritonitic adhesions occasionally excite attacks.

Symptoms.—The principal symptom is abdominal pain which is usually referred to the umbilical region and may radiate from this for a considerable distance. It may change locations. The pain varies in severity from a slight abdominal griping, cutting, stabbing, pinching or burning pain to one of such intensity

that the patient writhes, while the skin becomes pale and cool, cold sweat appears and the face presents an expression of fear. The pulse is small, hard and the heart sounds are faint. Syncope and general clonic spasms may result. In some cases there is palpitation of the heart with a sense of oppression and contraction of the cremasteric muscles.

The frequency of the recurrence and the duration of an attack is always problematic. It may terminate suddenly following vomiting or the escape of gases from the intestines. The abdominal walls may be rigid, tympanitic or relaxed. Firm pressure usually mitigates the pain.

Diagnosis.—This is based upon the clinical history and the symptoms as outlined. It should be differentiated from enteritis, intestinal obstruction and from rheumatism of the abdominal muscles.

ENTERALGIA.

1. Fever is absent.
2. The pain is relieved by pressure.
3. The attack appears suddenly.
4. Between the paroxysms there is comparative freedom from pain.

ENTERALGIA.

1. The pain radiates.
2. The pain is relieved by pressure.
3. The bowels are normal.
4. No stercoraceous vomiting.

ENTERITIS.

1. Fever is present.
2. The pain is aggravated by pressure.
3. The attack appears slowly.
4. The pain and tenderness are more continuous.

INTESTINAL OBSTRUCTION.

1. The pain is more localized.
2. The pain is aggravated by pressure.
3. There is obstinate constipation.
4. Stercoraceous vomiting is present.

ENTERALGIA.

1. The pains are deep.
2. Not affected by the weather.
3. The pains are paroxysmal.
4. Not modified by movement.

RHEUMATISM.

1. The pains are superficial.
2. Worse in damp weather.
3. The pain is continuous.
4. Aggravated by movement.

Prognosis.—Death seldom results from an attack of intestinal pain. If the case is curable the prevention of recurrent attacks is usual.

Treatment.—In the management of these cases the cause should be sought out and corrected if possible. Anemia and hysteria should be corrected, tabes and the various forms of toxemia managed according to the methods employed for this purpose in the various diseases. During the attack the use of dry or moist heat over the abdomen is of service. In the employment of these applications, they should be such as will retain the heat for some time. In many of these cases the administration of high colon flushes or as hot water as the patient can endure is often of service. If the pain is excruciating a few whiffs of chloroform will relieve.

Opiates should be avoided in these cases.

Colocynth.—When this remedy is indicated the pains appear to radiate from the umbilicus, are of a sharp, cutting, darting or twisting character, and occur in paroxysms; relieved by bending double or by hard pressure; coffee and smoking relieve, but food and other drinks usually aggravate.

Dioscorea villosa is indicated in those with feeble digestive powers, both young and old. There are severe colic-like pains, which do not intermit and are aggravated by rest; relieved by stretching out the

body or by walking about. Hyperesthesia of the abdominal nerves; pains shift their location suddenly and appear in distant parts, as the fingers and toes; stools bilious and offensive.

Nux vomica should be used in cases of the irritable, careful, zealous patients who complain of neuralgia of the bowels from indigestion or overeating; attacks resulting from dissipation or from sedentary habits; periodical attacks occurring after eating or after regular meals; pains relieved by bending double or by lying on the face; constipation; diurnal drowsiness.

Belladonna is indicated in bilious, lymphatic, plethoric persons who complain of violent cutting, clutching, clawing pains in various parts of the abdomen, constantly shifting about, appearing and disappearing suddenly; light pressure aggravates, but hard pressure relieves. Thirsty, but drinks little, as drinking aggravates the pains; tendency to cerebral hyperemia; worse until evening and after midnight.

Chamomilla is indicated in those of a nervous, irritable, excitable temperament, who are over-sensitive to pain and complain of colic-like pains in the region of the navel, also lower down on both sides, with pain in the hollow of the back as if broken; abdomen swollen and drum-like; flatus passed in small quantities without relief; relieved by warm applications.

Arsenicum album is indicated in those who are anxious, fearful, restless, full of anguish. In whom the attacks come on suddenly after eating and drinking, especially after partaking of ice water, cake or ice cream; periodical attacks due to malarial in-

fluence ; neuralgic attacks followed by great prostration, the strength suddenly sinking. Burning, cutting pains attended by great restlessness and intolerable suffering ; paroxysms attended by nausea and vomiting, or with thin, watery stools ; pains worse at night, also after eating and drinking, better from warm applications.

Alumina should be remembered in spare, dry, thin subjects who complain of paroxysmal pains, with dyspnea, worse when stooping, violent cutting pains, principally in the evening, succeeded by oppression of the chest, colic-like pain, followed by diarrhea and pain in the region of the kidneys, pinching and lacerating pain, with chilliness in the abdomen, relieved by heat.

Opium in potency should be remembered in those with light hair, lax muscles and want of bodily irritability. They complain of colic, violent cutting pains in the abdomen, as if made with a knife ; constipation, with hard and distended abdomen ; pains worse before and after stool ; hypochondriac regions painful when touched.

Plumbum is indicated when the disease is of the spinal region and there is rapid and excessive emaciation. The patient complains of excruciating pains in the umbilical region, shooting to other parts, and moderated by pressure. Recti muscles hard and knotty ; abdomen retracted to the utmost extent ; ameliorated by hard pressure and by friction ; obstinate constipation, pains resembling lead colic, but due to some other cause.

Cuprum metallicum is indicated in those who complain of mental and physical exhaustion from over-exertion of the mind and loss of sleep. They complain of violent cutting, drawing, intermittent pains. Abdomen retracted and sore to the touch; pains cause the patient to utter fearful screams; very restless and uneasy, constantly tossing about; worse by drinking cold water.

Cuprum arsenicosum.—This remedy should be carefully studied and compared with the former remedy.

Platina should be studied in lead colic, severe colic-like pains, with sensation of burning and writhing around the abdomen, with oppressed breathing, and with a tremulous sensation through the whole body; drawing pains, extending from the chest to the groins and into the genital organs; patient screams and tosses about in every direction to relieve his suffering.

Podophyllum should be studied in the case of those with a bilious temperament, who suffer from gastrointestinal derangements and lead colic; frequently recurring attacks, accompanied by retraction of the abdominal walls; severe straining during stool, with escape of flatus; morning aggravations; attacks renewed by eating and drinking.

Magnesia phosphorica should be remembered in dark complexioned, thin, nervous persons who complain of sharp, cutting, stabbing, stitching, lightning-like pains, relieved by pressure and hot applications.

APPENDICITIS.

Definition.—This is an infection of the vermiform appendix which may be either catarrhal, chronic or recurrent; and which may terminate either in recovery, suppuration, gangrene and perforation or abscess formation. The caput colic is frequently involved, giving rise to typhlitis and peri-typhlitis.

Etiology.—This is dependent upon injury or infective agent, or both. The injury may be the result of a fecal concretion, or in rare cases a fruit stone, or other foreign bodies within the appendix, in other cases a virulent type of bacteria is operative, as the bacillus coli communis, the proteus vulgaris, the streptococcus, the typhoid bacillus, the tubercle bacillus or actinomycosis.

Of the predisposing causes, stricture of the proximal portion of the appendix (Gerlach's Valve) should be mentioned, as this interferes with the proper drainage of the appendix. The blood supply may be so interfered with as to favor infection or the position of the appendix may be such as to favor it.

Pathology.—It should be remembered that the appendix is a glandular organ presenting certain points similar to the tonsils, and, like them, is subject to follicular, mucous, submucous, infective, exudative and ulcerative disorders. Preceding the catarrhal form there is usually a history of constipation and indiscretion of diet. After passing through the inflammatory stages this form subsides, but there remains an increased vascularity of the appendix that renders it

susceptible to recurrent attacks. Obliterating appendicitis is but the later stage of the catarrhal form in which there is a thickening of the mucous and sub-mucous coats due to infiltration and an obliteration of the lumen of the organ. The ulcerative form in which the ulceration is produced by fecal concretion or a foreign body within the appendix gradually passes to perforation. This is usually near the apex. The concretion passes through the wall of the appendix into the abdominal cavity with the septic discharge and causes septic peritonitis or a perityphlitic abscess. If there has been adhesion of the appendix and the peritoneum, both are perforated, and the abscess becomes extraperitoneal. Adhesions are common in all directions, while pleurisy is at times met with. In some cases concretions are found obliterating the canal; in other cases there is ulceration of the interior of the appendix; while in others there is an obliterating appendicitis. In the gangrenous type, rapid sloughing of a part or the whole of the wall of the organ takes place. The condition is a grave one and may result in a general peritonitis of the severest type.

The attending inflammatory process varies from a simple periappendicular exudate, which forms adhesions with surrounding organs, to one of a much severer form, which occupies the right iliac fossa. The quantity of pus in the cavity varies from a drachm to a pint or over. It may be thick or thin, foul or odorless. It may break through its adhesions and discharge into the peritoneal cavity, into the in-

testines, bladder or vagina. It may rupture through the abdominal wall. There may be metastatic abscess of the liver.

Symptoms.—The attack is usually ushered in by a sudden intense pain in the right iliac fossa. This is frequently localized at a point midway between the anterior superior spine of the ileum and the umbilicus (McBurney's point).

The pain may radiate from this towards the umbilicus, epigastrium, the groin and the testicle. It is attended with periods of exacerbation. An absence of pain is no indication that the disease is not present and not progressing. In the majority of cases nausea and vomiting are present. The pulse is usually rapid, while the temperature may reach 104° F., although the temperature gives but little information regarding the severity of the case. Constipation is usually present during the early stages, but diarrhea and constipation may alternate. There is rigidity of the right abdominal muscles or there may be circumscribed rigidity over the region of the appendix. But in these cases a tumor may be felt at the lower border of the ileum. In some cases, and especially in children, the disease may come on insidiously and pain and fever be totally absent. There may be some colicky pain in this region. If the case is one of mild catarrhal appendicitis the symptoms are slight, and often hardly noticeable; they continue for two or three days, when the patient gradually recovers. But when upon or about the third day after the onset of the symptoms, a localized superficial edema appears,

when a doughy mass is felt at the seat of pain which gradually assumes shape to the touch, it is likely that suppuration has taken place and a white blood count will show a leucocytosis of from 20,000 to 30,000 and perforation imminent.

If adhesions have had time to form, the tumor may remain after perforation has taken place, but if perforation has taken place early before the adhesions have formed there is usually a chill, vomiting, shock, a more or less diffused pain, a quickened pulse and an increased temperature. The tumor is not felt and the symptoms are those of a diffused peritonitis. The patient usually lies upon his back with right thigh flexed on the pelvis.

Diagnosis.—This is based upon the sudden onset of a diffused abdominal cramp or colic, and especially if there is pain in the right iliac fossa, with tenderness upon palpation over McBurney's point. This tenderness is at first localized, but sooner or later it extends to the whole abdomen; or the tenderness may at first be general, but ultimately become localized over the appendix. This is usually attended with nausea and vomiting. The overlying muscles become rigid and firm and percussion resonance is impaired. The temperature is elevated, and the pulse rate is increased. In many of these cases an examination by the rectum reveals a tense swollen appendix or tumor in the pelvis. If perforation takes place there is a rapid development of a general peritonitis with collapse. In the case of development of an abscess there is in addition to the local pain and tender-

ness a swelling above Poupart's ligament. The skin over this swelling becomes doughy and pits upon pressure, while palpation gives deep seated fluctuation.

APPENDICITIS.

1. Rise of temperature is early.
2. There is no stercoraceous vomiting.
3. Leucocytosis is present in suppurative cases.
4. If there is pus, heat aggravates the pain.
5. The variation between the rectal and axillary temperature is greater than normal.

APPENDICITIS.

1. The onset is rapid.
2. The course is rapid and convalescence is not delayed.
3. Pain under pressure is sharp.
4. Most in young male adults.
5. Pain usually precedes the tumor.
6. There is vomiting and rigidity of the abdominal walls.

INTESTINAL OBSTRUCTION.

1. Rise of temperature is late.
2. Stercoraceous vomiting is present.
3. No leucocytosis.
4. Heat relieves the pain.
5. The variation between rectal and axillary temperature is normal.

TYPHLITIS.

1. The onset is gradual.
2. The course is slow and convalescence is delayed.
3. Pain under pressure is dull.
4. Most in corpulent age, individual leading a sedentary life.
5. The tumor precedes the pain.
6. These are not as pronounced.

Other conditions that may be mistaken for appendicitis are carcinoma of the cecum which usually occurs in old people, and gives rise to the development of a nodular tumor, induces rapid marasmus, begins slowly and pursues a chronic and usually a non-febrile course.

Tuberculosis of the vertebral column or of the pelvic bones is at times attended with accumulations of

pus in the right iliac fossa, but this is attended with alterations in the vertebral column or the pelvic bone. Sacro-iliac disease and sciatica should also be differentiated.

Psoitis is not attended with any disturbances of the intestines. Carcinoma and tuberculosis of the mesenteric glands are characterized by the formation of multi-nodular tumors. Salpingitis is at times difficult to differentiate. Biliary and renal colic are attended with jaundice and alteration of the urine. Wandering kidney should not be mistaken for appendicitis, as it is smooth, bean shaped, is not especially tender to pressure and is not attended with fever.

Prognosis.—This depends upon the type of the disease. Cases of simple catarrhal appendicitis with adhesive peritonitis usually recover. Cases in which the invasion of the general peritoneal cavity by septic material occurs usually terminate fatally. Cases in which extra-peritoneal perforation occurs generally recover. Gradual remission of the active symptoms and a reduction in the size of the tumor are considered favorable symptoms. If the remission is sudden the prognosis is not good. Improved surgical treatment has reduced the mortality. A tendency to recurrence is a feature of this disease and the danger to life increases with each recurrence.

Treatment.—Patients that have had one attack should in the future guard against constipation, and avoid indigestible articles of diet. Traumatism to the abdomen, other muscular exertions, and dancing have appeared to be the cause of recurrence in some cases and should be avoided.

The patient with appendicitis should be put to bed and kept absolutely quiet and a bed-pan used for evacuations of the bowels. All food should be stopped for twenty-four hours at least. If vomiting is present, the withholding of all foods is especially necessary. During this time small quantities of hot water or clear tea may be allowed. On the second day beef juice or broth may be taken. If pain is severe, it will be found that application of an ice-bag will not only relieve the pain, but will also reduce the temperature and lower the pulse rate. In some cases it will be found that the application of heat gives more relief than does cold. If heat is used, care should be exercised not to irritate the skin. In those cases in which the bowels are constipated, it is advisable to give an injection of sweet oil, which should be followed in a few hours by a rectal enema of warm water. If it does not relieve the impacted condition of the colon, a second one should be used. If there is no indication that the bowels are impacted from two to three ounces of olive oil should be taken internally, and in from ten to twelve hours it should be repeated till all fecal material is removed. Cathartics and anodynes should be avoided.

During convalescence the patient should remain in bed and should not be allowed to get up till all symptoms have subsided. The diet should consist of such articles of food as are non-irritating.

Surgical treatment is demanded when, following the clearing of the bowels and the use of the indicated remedy, it is found that the symptoms continue

to increase in severity, and when a firm, gradually enlarged mass can be felt at the seat of the localized pain, and especially if there is local edema; when there is abdominal distension, high pulse, diffused pain and indications of a general peritonitis, appears at any time in the course of the disease. A frequent and progressively accelerated pulse rate in itself is an indication for operation. When pain appears suddenly, is severe, progressive and is attended with a chill, it indicates abscess, or perforation, rupture and operation. An increased temperature associated with the other two, but especially the increased pulse rate, indicates an immediate operation. A gradual subsidence of the pulse rate, temperature and pain is an indication of a favorable termination. In appendicitis complicating pregnancy, an early operation is recommended in all but the mildest cases.

Belladonna.—This remedy should be studied when the attack and the pain appear suddenly. The parts are extremely sensitive to the touch or motion, even of the bed. The pulse is rapid and there are all the indications of intense congestion and approaching inflammation.

Bryonia alba may be studied when there are indications of peritonitis. There is pain, soreness and sensitiveness in the ilio-cecal region. The pain is aggravated upon the slightest attempt to move. The patient is thirsty and wishes to drink large quantities of water. The lips, tongue and throat are dry. The bowels are constipated.

Mercurius corrosivus may be useful in those cases

when there is present a hard, painful, indurated mass, with alternate chills and heat. The face is pale, the tongue is broad and flabby with a white coating. The bowels may be constipated or the evacuations be slimy.

Cantharis is indicated when there are sharp, stitching burning pains. The patient is restless with a pale, death-like face. There is violent urinary tenesmus and strangury, and the stools are apt to consist of reddish mucus like scraping of the intestines.

Rhus toxicodendron may be given in cases that assume a typhoid type. The abdomen is distended and painful, the patient is in such distress that he must move and finds but a momentary relief. The parts are red, swollen and sensitive.

Lachesis should be remembered in the typhoid septic cases. The parts are dark colored and the patient is worse after sleep.

Arsenicum album is indicated in septic cases when the patient is greatly prostrated, restless with a sensation of burning. All conditions are worse during the night and from cold and are better from heat. There is a constant desire for a mouthful of water, but the patient vomits immediately after eating or drinking.

Hepar sulphur. is useful in suppurative cases where thorough drainage has been established. The patient gives a history of repeated suppuration upon the slightest provocation. He is extremely sensitive to drafts of air, takes cold easily, and is oversensitive to pain.

Silicea is indicated in much the same conditions as

the former, suppuration is present and the drainage is taking place. The patient is cachectic, the face is pale yellow, pinched, old looking and there is a picture of weakness, has "lost his nerve," is weak and faint hearted.

Calcareo sulphurica is another remedy that should be studied in this group of cases.

AMYLOID DEGENERATION OF THE INTESTINE.

This is also known as lardaceous degeneration. The intestines are among the organs most frequently involved in the degenerative process. It may involve the whole intestine or only a part.

The one symptom present is diarrhea. This is obstinate and persistent. There is often a history of prolonged suppuration or syphilis.

The diagnosis is difficult. The diarrhea is painless and is without blood. The liver and spleen are enlarged and there is usually albumin in the urine.

The prognosis is unfavorable.

The treatment consists in overcoming so far as is possible the primary disease and in the regulation of the diet.

ACCUMULATION OF GAS IN THE INTESTINES.

Synonyms.—Meteorism, tympanites, flatulence.

Meteorism and tympanites are terms used to describe abnormal accumulations of gas in the intestines. The term flatulence is used to indicate a great formation of gases that are removed by eructations or flatus.

Physiologically the intestines contain a certain amount of gas. Carbon dioxide in the intestines is partially derived by diffusion from the blood-vessels of the intestinal walls and partially from fermentation in the intestines. Hydrogen, ammonia, methane and sulphuretted hydrogen are wholly derived from fermentation and putrefaction of the intestinal tract.

Etiology.—Aerophagy or air swallowing is noticed in hysterical women. Constipation is present in many cases and assists fermentation. Large quantities of fermentable substances in the intestines with bacteria and fungi favor the development of gases. Meteorism may be dependent upon intestinal obstruction, and in diffused peritonitis due to arrested muscular action of the intestines.

There is a form of meteorism noticed in hysterical subjects (*tympanites hystericas*) which in some cases gives rise to a diffused distension of the abdomen; while in other cases it is circumscribed (phantom tumor). The particular etiological factor in these cases is not determined.

Symptoms.—There is a symmetrical development of the abdomen, although it may be localized. Percussion gives a meteoristic note, owing to the diaphragm being forced up, the pulmonary percussion note is dull, the apex of the heart is displaced. The respirations become shallow, rapid and costal in character. The patient becomes cyanotic. The jugular veins are distended. The patient may complain of great pain. In some cases the condition is localized and a phantom tumor is present.

Treatment.—This must be adapted to the individual case. Constipation should be corrected. Articles of food that produce fermentation should be avoided. Intestinal catarrh should be treated, when it appears as a complication of an acute disease the primary disease should receive attention.

In hysterical subjects gentle rubbing or faradization of the abdomen is of service. In some cases in which the distension is enormous, a tight bandage about the abdomen gives relief. A high enema and in some cases the introduction of a tube high into the bowels allows much gas to escape.

In desperate cases the introduction of a fine trochar into the distended coil of intestine will give relief. The patient should receive such diet and medicinal agents as will control intestinal fermentation.

The selection of the remedy in these cases requires careful differentiation. *Carbo vegetabilis* should be studied when the flatulence appears to affect the stomach and small intestines. The condition is frequently more distressing at night, and the bowels are loose.

Lycopodium is of service when the colon is distended and the bowels are constipated.

Argentum nitricum should be remembered in neurotic subjects, when the eructation is annoying and the gas escapes with much noise.

Nux moschata has great distension after eating.

Lobelia when there is the sensation of a lump in the throat which interferes with respiration and deglutition.

Gratiola should be remembered in cases in which there is great distension of the abdomen and of the stomach, with lassitude and constriction of the throat and rectum, and with constipation.

INTESTINAL ATONY.

Definition.—This is a relaxation of the muscular coat of the intestine.

Etiology.—In some cases it is congenital. In others it is the result of debilitating disease, anemia, chlorosis, neurasthenia and hysteria. The neglect of evacuating the bowels at regular intervals so that they become inactive is also a cause. It is observed in those who suppress the desire for stool in order that their work may not be interrupted.

Pathology.—There is a relaxed condition of the muscular coats of the intestine. The general nutrition of the patient is below par. A condition of anemia is present, while the urine often contains indican.

Symptoms.—Constipation is present. The patient may not have a movement of the bowels more frequently than once or twice during the week, and not at all without purgatives. When they do move, excessive expulsive efforts must be made. The feces are dry, hard, and black as if burned. Their expulsion causes pain and burning in the rectum and anus, so that small hemorrhages may result. The longer the period between stools the greater the discomfort during the stool. The patient becomes pallid, emaciated, depressed and incapable of mental activity as the auto-intoxication becomes more evident.

Diagnosis.—This is based upon the symptoms as outlined and the clinical history of the case.

Prognosis.—While the condition is not usually fatal it is obstinate to manage and is distressing.

Treatment.—These patients must have treatment that will improve their general health. Much the same treatment as is outlined for constipation is indicated.

HEMORRHAGIC INFARCT OF THE BOWELS.

Definition.—This is an extravasation of blood into the intestinal wall, the result of embolism or thrombosis of one of the mesenteric arteries, or one of their branches.

Etiology.—It is dependent upon a valvular disease of the heart or an aneurism.

Pathology.—There is a clot obstructing either the superior or inferior mesenteric artery or one of their branches. The walls of the jejunum and ileum are swollen and congested, while the proximate mesentery is congested and infiltrated.

Symptoms.—These appear suddenly. There is nausea and vomiting which is accompanied by colicky pain, abdominal distension and intestinal hemorrhage. The bowels are loose and contain blood sooner or later.

Prognosis.—This is grave, although a collateral circulation may be established.

Treatment is not satisfactory, as in many of these cases the patient is not seen early. Surgical interference has been beneficial in a few cases. The condition of the heart should receive attention.

RUPTURE AND PERFORATION OF THE INTESTINE.

Rupture of the intestine is usually dependent upon some form of mechanical injury, as a fall, blow, crushing, stab, etc. Perforation is dependent upon some form of ulceration. The ulcers are those of typhoid fever, tuberculosis, round ulcers of the duodenum and carcinomatous destruction of tissue. Rupture of the appendix should also be mentioned.

Symptoms.—The one great symptom is pain. This is described as a feeling as if something had ruptured. The pain is so severe that it causes fainting and collapse. The pulse is small, thirt, often rapid and there is nausea and vomiting. A few cases have been reported in which there were no symptoms present and for a time the patient complained of nothing.

In cases of perforation due to typhoid ulcers leukocytosis is present, and in many cases there are accumulations of gas in the peritoneal cavity so that the abdomen is uniformly distended.

Treatment.—When the diagnosis has been made, the patient, as soon as possible, should be prepared for and a laparotomy performed, and the injured intestine repaired. For the management of these cases text books on surgery should be consulted.

NERVOUS DIARRHEA.

This is met with in certain hysterical and neurasthenic patients. They have a desire for stool with looseness of the bowels when there is fear, embarrass-

ment, or the consciousness of an approaching ordeal. In some cases there is an increased peristaltic action, while in others there is an increased secretion of the intestinal juice. There may be from two to twenty stools during the day. During stool there may be rumbling of gas in the bowels.

Tabetic patients are at times subject to the attacks of nervous diarrhea. There is no pathological change in the intestines.

Treatment.—Many of these patients appear to be perfectly healthy in every other particular. But a careful examination usually shows some neurotic or hysterical tendency that should be remedied. The habits and diet of the patient should receive attention. Stimulants should be avoided. Hydrotherapy and sleeping in a cool room or in a tent are beneficial.

Gelsemium.—This remedy should be remembered in diarrhea after sudden emotions, grief, fright, exciting news, or the anticipation of any unusually trying ordeal, undergoing an examination, or going into a crowd, appearing in public, going to church or the theatre or submitting to an operation.

Ignatia amara should be remembered in patients of extreme sensitiveness and of a changeable mood with a disposition to silent grief. They complain of great weakness, an all-gone sensation, especially at the pit of the stomach. There is frequent deep sighing. The diarrhea is painless and is produced by sudden emotion, grief and fright.

Phosphoric acid.—This remedy is indicated in pale, sickly patients who present a worn, weary, hopeless,

haggard look. They complain of prostration, general weakness and apathy. Diarrhea appears as a result of grief, fright, emotion and exciting news. It is painless and non-debilitating.

Argentum nitricum.—This remedy should be remembered when the exciting cause is the apprehension of an approaching ordeal.

PERISTALTIC UNREST.

This is but a part of an abnormal excessive motility that affects the intestines, and consists of a peristaltic wave that passes from one end of the bowel to the other, carrying with it whatever gas or fluid may be present in the bowels. While it is observed most frequently in those of a neurotic type, it is also observed in those who are perfectly healthy. It may occur following an emotional shock, or during the menstrual epoch. It may be of but a few minutes' duration or it may last for hours.

It is recognized by rumbling, gurgling sounds in the abdomen. Pain is rare and the most distress is from the noise produced. These patients are benefited by sanitarium treatment with electricity, hydrotherapy.

ENTEROSPASM.

Nervous spasm of the intestines.

This is a spasm of the muscular layer of the intestines that occurs in hysterical and neurasthenic individuals.

It gives rise to a circumscribed abdominal pain and

a spastic constipation. The feces consist of small particles resembling coffee beans, or the feces of a sheep or goat.

Treatment.—This consists in the correction of the deranged nervous system. The constipation should be relieved by enemata of oil. The applications of heat by means of warm compresses and warm baths are beneficial.

One of the following remedies may be of service : *Belladonna*, *Opium* (in potency), *Chamomilla*, *Moschus*, *Valeriana*.

DILATATION OF THE COLON.

This condition may be acute or chronic. The acute form occurs as a result of acute obstruction. It may be associated with peritonitis and typhoid fever. The chronic form occurs as a result of intestinal atony or of a chronic constipation. It has been observed as a congenital defect.

Pathology.—The whole or any portion of the colon may be dilated. In acute cases the muscular wall may be thinned, but in chronic cases it is thickened. The colon is frequently dilated to enormous dimensions.

Symptoms.—In these cases there is marked abdominal distension which yields a tympanitic percussion note. Frequently there is an upward pressure upon the liver, spleen and thoracic viscera, to such an extent that the action of the heart and lungs is interfered with and death has even occurred from interference with the heart's action. The bowels are con-

stipated, or at times they are small and liquid. The hepatic and splenic dulness are changed. Vomiting occurs in acute cases. The abdominal distension may become enormous and be continuous from childhood throughout life unless it causes death, which may result from malnutrition, pressure or copremia. This condition should be distinguished from fecal accumulation, cancer of the peritoneum, hydatid cysts and cancer of the intestines.

Diagnosis.—This is based upon the distension of the colon, the constipation and the history of the case.

Prognosis.—This is not favorable so far as recovery is concerned. Surgical procedure has been of service in a few cases, while a few are known to have recovered under medical treatment.

Treatment.—In these cases if constipation is present it should be overcome by means of enemata and by the use of olive oil internally. If a stricture exists it should, if possible, be dilated and if there are neoplasms they should be removed. The diet should be one that is easily digested, that will not produce much fermentation and one that will leave but little residue. Gentle massage of the abdomen that will stimulate mild peristalsis is beneficial. Electricity is also of service.

Colonic irrigation and cool enemata are of service in assisting peristalsis and enabling the gas to escape. In some cases the retention of the colon tube in place will assist. Spinal and abdominal sprays with cool water are suggested. The remedies that have been

of service are *Nux vomica*, *Strychnia*, *Kali phosphoricum* and *Carbo vegetabilis*.

OBSTRUCTION AND STENOSIS OF THE BOWEL.

Definition.—This is a condition in which the normal passage of fecal matter through the bowels is interfered with.

Etiology.—This may be congenital or acquired. Congenital obstruction is rare, and is met with in occlusion of the rectum, or when the bowel is deficiently developed higher up.

Obstruction and acquired stenosis are dependent upon one of three conditions, those which are intra-intestinal, extra-intestinal and those that are parietal in origin.

Among the causes that are intra-intestinal are fecal accumulations, foreign bodies, masses of worms and enteroliths. Among the extra-intestinal causes are constrictions due to diseased condition of the adjacent viscera, to tumor or displacement of the liver, spleen and kidneys, or diseased conditions of the pancreas, or neoplasms of the omentum, uterus, ovaries and bladder. Inflammatory exudates about the uterus, an impregnated or a retrodisplaced uterus causing pressure upon the bowel may also cause obstruction. Prostatic hypertrophy and uterine pessaries have also been the causes.

Of the parietal causes should be mentioned cicatrices and neoplasms. Tubercular ulcers, but more frequently syphilitic and dysenteric ulcers, result in cicatrices. Of the neoplasms, carcinoma, sarcoma, polypi, lipomata and adenomata are met with.

The condition may result from hemorrhoids, echinococcus, invagination of the bowels and incarcerated hernia. There is a variety of obstruction that is dependent upon twisting of the intestine (volvulus) about the mesentery as an axis and the formation of a knot. Paralytic ileus is also met with.

Pathology.—The abdomen is distended and the intestine above the point of obstruction is tympanitic. Peritonitis and adhesions may result. The diaphragm is pressed upward as well as the liver, stomach, spleen and the lower portion of the lung and the heart. A functional hypertrophy of the walls of the bowel above the stricture results, while below this point they appear narrowed and collapsed. The constricted portion of the bowels shows inflammatory changes and may be necrotic to such an extent that rupture takes place.

Symptoms.—These begin suddenly. There is obstinate constipation with distension of the abdomen and fecal vomiting. Symptoms of active peristaltic movements are observed when the large bowel is the seat of the stenosis. The stools present the appearance of coffee beans, or of the fecal discharges of sheep or goats. In some cases blood is present at the stool, and the constipation may be replaced by diarrhea. The vomited material consists at first of the gastric contents, later of a greenish, bilious material and last of fecal matter with the fecal odor.

The general condition of the patient is impressive, the features are sunken, the voice is faint and high pitched, the temperature is often subnormal, while

the pulse is small and flowing. Following the vomiting the skin is moist and cold. The urine is of a dark color, is diminished in quantity, while the indican is increased. The duration of life following the onset of obstruction may be only a few hours, death resulting from shock. In other cases the patient may survive for days or even weeks. Death may be the result of exhaustion, peritonitis, rupture of the intestine, or perforative peritonitis. It may be the result of inspiration-pneumonia, pulmonary abscess or gangrene of the lung.

Diagnosis.—This is based upon the presence of the constipation, the failure of the gas to escape from the bowels, and the fecal vomiting. The determination of the nature and of the location of the obstruction is not so easy and demands a most thorough investigation of the whole clinical history and the symptoms of the case.

Prognosis.—This is always grave, but is modified according as the cause is amenable to medical and surgical treatment or not.

Treatment.—In all cases the diet should be such as to avoid constipation and the retention of large masses. A displaced uterus should be replaced, enlarged prostate reduced and all conditions that produce this condition should be corrected so far as possible.

If the symptoms have developed the patient should remain in bed and only a liquid diet (but no milk) be allowed. Hot or cold fomentations applied to the abdomen may assist in relieving the pain, but they

have no influence over the condition. Strangulated hernia should be replaced. Fecal accumulations should be removed by irrigation of the bowel with cold water, repeated every two hours if necessary. The water of the first injection may return clear, as the fecal matter is so hard that it must first be rendered soft. It may be necessary to remove the fecal matter manually. In other cases the use of injections higher up in the intestine should be tried several times a day. Enemata of warm air or carbon dioxide may be employed in place of water.

If the fecal vomiting is persistent the stomach should be washed out several times. Intestinal obstructions have been known to disappear after this procedure.

The application of a faradic current, one pole in the rectum and the other over the abdomen, has been known to give relief.

Surgical interference is demanded in many of these cases and should not be delayed till peritonitis or gangrene have set in. Early operations are always attended with better results than are late ones. In cases in which there are indications of strangulation, the operation should be performed at once. The use of morphine during the early stages to allay the pain is a dangerous procedure, as the physician is unable to form a proper idea of his patient's condition.

Atropine gr. 1-120 to 1-60 has been employed to control spasm of the intestinal walls.

Purgatives are contraindicated in all cases.

Massage may be employed carefully in fecal im-

paction and intussusception. It should not be employed if peritonitis is present.

INTUSSUSCEPTION OF THE BOWEL.

Synonym.—Invagination.

Definition.—This is the inversion of one portion of the bowel into an adjacent portion.

Etiology.—It is most frequently met with in children between the third and twelfth month of life, and is more common among boys than girls. Constipation, diarrhea, intestinal polypi, stricture of the bowel, injuries of the abdominal wall, the result of a fall or a blow, have been mentioned as causative factors.

Pathology.—The invaginated portion is termed the intussusceptum, while the external is termed the ensheathing portion. There is danger of stricture or obstruction of the bowel and compression of the mesenteric vessels in these cases. Most commonly the ileum with the ileo-cecal valve is inverted into the colon, or the invaginated portion may protrude from the anus.

Symptoms.—There are no premonitory symptoms when invagination takes place; the patient is seized with severe abdominal pain which is paroxysmal and colicky in character and may last for a period of from twenty-four to thirty hours. During this time there is more or less nausea and vomiting, while the stools are thin and contain mucus and blood. The anal orifice may be open and blood and mucus escape, but obstinate constipation soon replaces the diarrhea.

The presence of an oval shaped tumor may be determined in the umbilical or right iliac regions when the patient is in the knee chest position. Symptoms of shock are present, as indicated by the cold skin, shrunken features, anxious facial expression, and the small, accelerated pulse. In advanced cases fecal vomiting is present.

Diagnosis.—This is based upon a sudden attack of pain which comes in paroxysms and is followed by the presence of a sausage shaped tumor in the abdomen. The stools may be of a dysenteric character, or consist of blood-stained mucus without fecal matter. The pain is so intense that the child draws the legs close up to the abdomen. Pressure and manipulation appear to relieve the pain temporarily, but it soon becomes continuous. Vomiting occurs and all the symptoms of the intestinal obstruction are present. The invaginated bowel may be felt or seen protruding from the rectum. It may slough and be detached and pass away, or stenosis may result.

INTUSSUSCEPTION OF THE BOWEL.	OBSTRUCTION.
<ol style="list-style-type: none"> 1. Most common in children. 2. The symptoms appear abruptly. 3. A sausage-shaped tumor in the abdomen is characteristic. 4. Constipation not so absolute. 5. Stercoraceous vomiting not marked. 6. Discharges of blood and portion of the bowel from the anus diagnostic. 	<ol style="list-style-type: none"> 1. Most common in adults. 2. May be abruptly, or may appear slowly. 3. There may be an abdominal tumor of irregular shape. 4. Constipation is absolute. 5. Stercoraceous vomiting common. 6. These are not present.

INTUSSUSCEPTION.

1. Is sudden in its onset.
2. Most common in children.
3. The temperature is normal.
4. Ineffectual bloody stool.

TYPHLITIS.

1. The onset is not sudden.
2. Most common in adults.
3. Fever is present.
4. Not so.

Both have pain, evidence of intussusception, and a sausage-like tumor, but the former is not necessarily in the right iliac region.

INTUSSUSCEPTION.

1. More common in children.
2. The onset is abrupt.
3. There is no fever.
4. A sausage-shaped abdominal tumor may be demonstrated, or a protrusion of the bowel from the anus.

ACUTE DYSENTERY.

1. More common in adults.
2. Begins gradually.
3. Usually some fever.
4. No tumor, no intestinal protrusion.

Prognosis.—This is always serious, but surgical treatment renders it more favorable.

Treatment.—The patient should be kept in bed. The diet should be exclusively liquid, meat broths, whey, diluted milk and other fluids. A teaspoonful to a tablespoonful of one of these may be taken every half hour. Hot applications may be applied to the abdomen.

If vomiting is incessant it will be partially relieved by gastric lavage, which may also be of service in reducing the invagination.

Administering opium or morphine to relieve the pain should not be used especially in the case of children, as even the smallest dose may be followed by serious symptoms. When resort is made to mechanical means to reduce the invagination, intestinal injection of water, milk and water, or a normal

saline solution at a temperature of from 100° F. to 105° F. are to be used. These may be repeated three or four times during the day. When administering these, the patient should occupy either the knee-chest position or the pelvis should be raised. The fountain syringe should be about five feet above the patient, and a soft rubber catheter should be passed into the bowel.

Rectal injections or chloroform narcosis may also be practiced. Injection of air or carbon dioxide is not as efficient nor as convenient as water. When the invagination has extended to the rectum an attempt should be made to reduce it by means of a long, but not too rigid, rectal sponge bougie. Abdominal massage has not been attended with good results, nor is it free from danger.

If other means fail inflation of the bowel with two or three gallons of hydrogen gas or air may be carefully used. Following its use the compressing of the nates will prevent the escape of the gas. Thorough manipulation should be combined with its administration. This treatment will be found efficacious in many cases. If reduction takes place a rumbling sound may be detected and the tumor disappears. Anesthesia is necessary for the proper carrying out of this procedure.

If surgical treatment is to be undertaken, it should not be deferred over eight hours, as longer delays are dangerous. For if extensive peritonitis or necrotic changes have taken place the outcome of the operation is doubtful. Should symptoms of collapse appear, recourse should be had at once to surgical aid.

INTESTINAL SAND.

This is also known as enteric lithiasis. It is gritty material consisting of organic matter and salts, as calcium phosphate and carbonate. It is associated with mucous colic, appendicitis and the arthritic diathesis. Its most important symptom is severe colic.

The treatment consists of the management of the primary disease.

PROLAPSUS OF THE RECTUM.

Prolapsus of the rectum is observed in children. In its management the buttocks should be raised and the bowel carefully replaced. To assist in retaining it a strip of adhesive plaster about two inches wide should bind the buttocks together. This should be left in position when the bowels move, after which the parts should be thoroughly cleansed, and another piece applied. A remedy should be selected that will meet the totality of the condition.

Ferrum phosphoricum is frequently indicated in weakly, delicate, anemic children.

Podophyllum should be studied in cases that occur following stool, muscular efforts, coughing, sneezing, etc. The condition often has a morning aggravation.

Calcarea carbonica should be remembered in chronic cases in children.

Aloes should be studied in cases that are associated with diarrhea and dysentery and tenesmus, when the stools may be passed involuntarily, or when the de-

sire for stool is imperative. *Mercurius* should be compared.

Ignatia amara should be useful in nervous, hysterical subjects who are constipated. If the patient is a child it is fretful, cries and the anus is bluish and bloody and defecation is painful. The prolapsus appears from the least exertion.

Muriatic acid should be studied in those cases in which the prolapsus occurs during micturition.

Sepia should be remembered in those cases that are made worse by any form of motion.

CONSTIPATION.

Synonym.—Costiveness.

Definition.—This is a condition in which the bowels irregularly and incompletely evacuate the feces.

Etiology.—This prevails in certain families. It may be dependent upon a false modesty of some who, instead of training the bowels to evacuate themselves, suppress the desire. This is especially true of girls while at school, while upon visits or at summer resorts. A diet that leaves but little residue is another cause. The prolonged employment of cathartics results in intestinal paresis. In other cases there is intestinal dilatation that is responsible for the constipation, while in others it is dependent upon a lack of nourishment, and as a result there is not enough residue to cause the irritation and reflex act necessary to evacuation of the bowels. Lack of exercise, an insufficient amount of fluid, an improper diet, as an excess of milk and cheese, are other causes. In other

cases irregular habits and postponement of defecation, relaxed condition of the abdominal wall, anal fissure, hemorrhoids, rectal ulcers, all favor constipation.

Pathology.—There is no lesion that is characteristic of constipation.

Symptoms.—These depend upon the acuteness of the condition. In mild cases there is headache, coated tongue, griping pain, and occasionally attacks of vomiting; with these there is a passage of a small quantity of fecal matter.

In more pronounced cases the symptoms develop slowly and consist of headache, a coated tongue and abdominal discomfort. An examination of the abdomen shows the colon to be impacted, especially in the right iliac region, at times also the left and the flexures of the colon. The mass may be tender, it is irregular in shape and can be moulded by pressure, and is completely removed by an enema. Intestinal colic may occur when there has been prolonged irregularity of the diet with neurosis. In many cases the feces are but partially evacuated and old, inodorous fecal matter remains in the colon. In the aged especially, diarrhea may co-exist as a result of the irritation of the retained fecal matter.

Diagnosis.—In the majority of cases this is an easy task, and yet in many apparently simple cases there are such perplexities that a thorough examination is required. It should be determined whether it is dependent upon a more serious condition. Intestinal atony may be recognized by filling the bowels with water or gas. Extreme meteorism favors stagnation

of the contents of the bowel, as does sensitiveness over the line of the colon indicate colitis. The rectum itself should be examined for hemorrhoids, fistula, fissures, ulcers and ampullar bulging, as each may cause a constriction of the sphincter muscle and may be mistaken for a condition of constipation.

Prognosis.—These cases seldom terminate fatally. Some of them, however, tax the physician's therapeutic resources.

Treatment.—Each case must be studied separately for its etiology, and the diet and the patient's habits considered. In beginning the management of these cases the bowels should be thoroughly cleared of all matter by high injections of sweet oil and the internal administration of olive oil, two ounces twice a day. Following this it is advisable to use massage or vibratory massage, beginning mildly and increasing as the patient can endure it. These treatments should be applied to the diseased points only.

The diet also must be regulated. The patient must drink a sufficient amount of fluid; this may embrace water, milk, cream and fruit juices, but they should be taken till at least three pints of urine is passed in twenty-four hours. The diet should be such that it contains much residue, especially cellulose. Fruit should be taken three times a day. A good dish is composed of equal parts of dried prunes, figs and apricots, and twice as much green apples which have been peeled and cored; these should be stewed together for one hour and enough sugar added to suit the taste. Oatmeal (cooked three hours in a

double boiler,) brown bread, Graham bread, bran bread, or bread made of rye, so called black bread or pumpernickel, and vegetables should be taken in abundance. Plenty of butter, cream, milk, fat meat, fish, chicken, duck, eggs fried or scrambled, salads, fruit, sauces and soups, especially if they contain vegetables, should form part of the diet. If the patient is in the habit of taking stimulants with meals, light wines with or without carbonated water may be allowed, as well as coffee. Tea and cocoa are not to be allowed. Massage should be confined to the line of the colon. Exercise is beneficial in the majority of cases. In some weak, delicate women, who suffer from ovarian or uterine irritation, exercise appears to aggravate rather than improve the condition.

In certain cases a relaxation of the muscles of the abdomen or a pendulous abdomen is the cause of the constipation. In these cases a well-fitting abdominal bandage or passive movements of the abdominal muscles are of service. The daily use of light dumb bells, bending backward and forward from the hips, rotating the body from the hips, horseback riding, golf and tennis are to be recommended.

Those cases that are dependent upon nervous causes, as habit in which the patient does not attend promptly to the nervous impulse, must make the call of nature the most important event and attend to it alone. They should go to stool at a regular time each day. All irritation about the rectum should be removed.

In some of these cases of chronic constipation it will be found that there are ulcers and spasmodic strictures of the bowels that have to be remedied before a normal evacuation will take place. In these cases my practice has been to apply through a proctoscope a cerate composed of pine tar, 1 to 20, in benzoline; this is carried up by means of a tampon above the ulcer and point of stricture. This is repeated every other day as the case appears to demand. In women who have borne children and in whom labor has been prolonged an ulcerated condition in the upper part of the rectum is common, and this treatment is most efficacious.

Massage may be practiced by the patient or by an attendant. The movements should commence in the splenic flexure of the colon and extend along the descending colon to the sigmoid; following this the movements should commence at the hepatic flexure of the colon, that the transverse colon may be unloaded. Following this the movements should be commenced at the cecum that the whole length of the colon may be embraced in the treatment. Gentle percussion or vibration over the line of the colon is beneficial. The rolling of a five pound shot over the abdomen is also employed.

Hydrotherapy is of service in some cases. The friction bath, alternate hot and cold, spinal douches, hip baths 50° F., or a wet abdominal compress 50° F. on retiring are often beneficial.

Electricity, especially the faradic current, is useful, one electrode applied to the back, while the other is

moved over the abdomen. The static wave or the induced current, the former in mild, the latter in obstinate cases of constipation, are recommended.

The management of the constipation of infants is dietetic. It is rare in breast-fed babies. In bottle-fed babies it is the regulation of the proportions of the proteids and fats that is required. The raising of the percentage of fat or the lowering of the proteids is all that is needed. Should the constipation prove obstinate, in addition to the indicated remedy a teaspoonful of olive oil occasionally together with abdominal massage is all that is needed. If it should be found necessary to have an evacuation of the bowels a suppository constructed of a cone of oiled paper is usually sufficient to start the impulse.

Sulphur.—This remedy is indicated in thin, stoop-shouldered subjects, who walk and sit stooped. They are subject to venous congestions, especially of the portal system. They are of the nervous temperament, are quick motioned, quick tempered and their skin is sensitive to atmospheric changes. They are subject to hemorrhoids, with itching and burning of the anus. There is a sensation of tightness and fullness of the abdomen after taking a small meal. There are frequent faint and weak spells, with alternate constipation and diarrhea, with flushes of heat and hyperemia of the liver.

Nux vomica should be remembered in those who are spare, irritable, nervous and who are inclined to be quarrelsome, spiteful and malicious. They suffer from gastric disturbances, hemorrhoids and dyspepsia.

They are of a sedentary habit, take all forms of drugs and live on rich, highly spiced foods. The stools are large, hard and passed with difficulty. There is frequently an ineffectual urging to stool.

In some cases *Strychnia* may be of more service than *Nux vomica*.

Hydrastis Canadensis should be studied in those cases in which there are indications of a deficient peristaltic action of the colon and small intestine, and a lack of intestinal secretion. The patient complains of colicky pains, faintness and depression of the spirits, and a sensation of heat in the bowels. He suffers much from headache and bad taste in the mouth, diminished appetite and a constant dull pain in the region of the stomach. In the early management of these cases, five drops of the tincture in a glass of hot water before each meal will be found serviceable, and later five drops of the first or second decimal will act well.

Opium should be studied in cases in which there appears to be complete paresis of the intestines. The abdomen is much distended. The stools consist of hard, round, black particles. The patient is usually one with light hair and lax muscles.

Plumbum is indicated in those cases in which there is present a spasmodic cramp-like pain in the abdomen. The stools are hard, lumpy, and black, like sheep dung. There is urging and severe pains dependent upon the spasms of the anus.

Bryonia alba is indicated in those with a rheumatic, gouty tendency, who are subject to bilious at-

tacks. They are subject to attacks of indigestion, a sensation of heaviness in the stomach and severe frontal headache which is made worse from motion. There is no desire for stool. The stools are large, hard, dry, and dark as if burnt.

Graphites should be remembered in the cases of women who are inclined to obesity, have delayed menstruation and who suffer from habitual constipation. The stools are large, hard, knotty and in lumps which are held together by mucus.

Platina should be remembered in the management of the constipation that appears while traveling. Also in cases in which there is weakness and inertia of the intestine. The stools are soft and putty-like and there is difficulty in expelling them.

Æsculus hipp. should be studied in those cases in which there are hemorrhoids. The stools are hard, dry and difficult to evacuate. There is a sensation as of sticking in the rectum and severe lumbo-sacral backache.

Collinsonia should also be studied in cases of constipation complicated with hemorrhoids.

Ignatia and *Podophyllum* should be studied in cases in which there is present a tendency to prolapsus of the rectum with each evacuation of the bowels.

HEMORRHOIDS.

Synonym.—Piles.

Definition.—A varicose enlargement of the hemorrhoidal plexus of veins.

Etiology.—They are most common in middle life.

They may be dependent upon a local pressure which interferes with the current of blood as constipation, tumors of the rectum, enlargement of the uterus and ovaries, enlarged prostate, strictures of the rectum, especially as a result from syphilis. Interference with the portal circulation, as is found in hepatic atrophic cirrhosis and hepatic congestion, and diseases of the heart and lungs, that interfere with the return of blood by the general venous circulation are also causes of hemorrhoids. An excess of food and a lack of exercise predispose to hemorrhoids. They are common in gouty, obese subjects, and in men more frequently than in women.

Pathology.—Hemorrhoids may be situated above or below the sphincter ani. If above they are known as internal hemorrhoids, while below the sphincter they are known as external. They may appear as irregular links surrounding the anus, and are of a bluish color, and vary in size. Internal hemorrhoids are usually broad and flat and at times pedunculated and may protrude through the sphincter ani. Inflammation of the surrounding mucous membrane is usually present. The hemorrhoids may undergo ulceration and suppuration, hemorrhage may occur, thrombosis may be formed in the veins and fistula develop.

Symptoms.—These vary according to the extent of the process. Frequently they cause great annoyance; there is pain of a burning, smarting character and a sensation in the rectum as if it were filled with a foreign body. The pain is aggravated during defeca-

tion, by excessive exercise, by long continued sitting and by horseback riding. Nausea, vomiting and palpitation of the heart may accompany these symptoms. Internal hemorrhoids produce a sensation of fulness in the rectum and a dull aching pain and frequently a muco-purulent bloody discharge. The hemorrhage may be profuse. When the hemorrhoids prolapse and become strangulated the pain is intense.

Diagnosis.—This is made by inspection and palpation of the parts by means of the rectal speculum in the case of internal hemorrhoids.

Prognosis.—They do not prove fatal except when complicated with a septic infection. When the cause is removed the symptoms subside.

Treatment.—People subject to hemorrhoids should be careful to secure regular evacuation of the bowels. Enemata of oil are of service in overcoming local irritations that may result in constipation. The diet should be similar to that recommended for chronic constipation. Alcoholic and sexual excesses should be avoided. The patient should eat fresh fruits and drink an abundant supply of water. The meals should be taken regularly. There should be a regular time for stool. All straining at stool should be avoided. The patient should take plenty of out-door exercise.

If the hemorrhoids are inflamed and protruding the patient should remain in bed, and a soothing application should be applied, as warmed witch-hazel or calendula, or a cerate prepared from these. If they fail to bring relief, a poultice of flax-seed or cornmeal and

onions should be applied, and changed from time to time to keep it warm. In some cases the holding of a piece of ice to the part or spraying with cold water has relieved the engorgement. If they are internal a suppository of Hamamelis or Æsculus is of service.

If the hemorrhage is severe whenever the bowels move, it will be found that a teaspoonful of Hamamelis in a half glass of water taken internally three times a day for a month, then twice a day for a month, then once a day for another month will correct the condition. A pad of cotton impregnated with *Iodoform*, powdered *Suprarenal extract*, *Calomel*, *Bismuth subgallate*, or saturated with a ten per cent. solution of *Calcium chloride*, have each been employed with success.

For information regarding the injection methods and surgical treatment, the reader is referred to works on rectal diseases.

Æsculus hippocastanum is an important remedy in many of these cases. The hemorrhoids may be either internal or external. They are hard, purple, very tender, ache and burn. The patient complains of a sensation of dryness, soreness, constriction and fulness or as if sticks, gravel or splinters were lodged in the rectum. The sensation of fulness and protrusion is associated with that of tenesmus and a desire to strain. There is a severe backache with lameness, aching and weakness which is referred to the back.

Sulphur is indicated in persons who are subject to venous congestion, especially of the portal system. They are subject to alternate constipation and diar-

rhea. The stools are blood streaked. There is frequent protruding of the piles which bleed and there is a sensation of burning and itching after the stool as well as tenesmus.

Hamamelis should be studied in cases when there are varicose veins. The hemorrhoids bleed profusely. The blood is venous; there is itching, burning and rawness of the anus.

Collinsonia is useful in these cases in which constipation is a prominent factor. The constipation is obstinate and habitual. The stools are lumpy and light colored.

Aloes is indicated when the hemorrhoids protrude like bunches of grapes. There is a constant bearing down sensation. The discharge of blood is black. There is a degree of tenderness and congestion of the liver. The distress caused by the hemorrhoids is relieved by the application of cold.

Nux vomica should be remembered in those of sedentary habits who indulge in liquors and highly seasoned food. The bowels are constipated and there is more or less abdominal distress.

Aconite, *Capsicum*, *Arsenicum* and *Podophyllum* should be studied.

FISSURES OF THE ANUS.

These consist of tears or excoriations which may be more or less general. They may be at any part of the anus.

Etiology.—Habitual constipation in a patient with a soft, irritable skin predisposes to fissure. They are

most common in women and are often noticed after parturition.

Symptoms.—The principal symptom is the paroxysm of pain which accompanies defecation; which is as if a red hot iron were boring through the anus. The pain may extend to the genital organs, legs, and bladder. On account of the severe pain, the patient defers defecation or even the passing of flatus. Inspection and digital examination reveal the fissure, at the external end of which there is a polypoid fold of the skin.

Treatment.—Constipation should be avoided that the patient may not be obliged to strain during an evacuation of the bowels. Æsculus cerate or suppositories applied to the parts will relieve the pain following defecation. In many of these cases the patient should be prepared, a general anesthetic administered and the anus forcibly dilated. By means of a knife an incision $\frac{1}{4}$ inch deep should be made the whole length of the fissure. The polypoid fold of skin should be removed, a soothing application should be applied and the patient remain at rest for several days.

Rhatany is accredited by many as having cured fissures in the anus. There is a sensation of burning in the anus like fire, preceding and accompanying defecation and lasting long afterwards. Trousseau has used it locally; an enema is employed every morning to empty the bowels, half an hour later a drachm of *Rhatany* in five ounces of water is thrown up into the rectum and retained. For a few days the pain following its use is increased.

Nitric acid has been employed by many in the relief of this complaint.

Graphites and *Natrum muriaticum* have also had some influence in this condition.

TAPE-WORM—CESTODES.

Varieties.—*Tenia saginata* or beef tape-worm, *tenia solium* or pork tape-worm, *bothriocephalus* or *tenia latus*, the fish tape-worm.

Symptoms.—These may attain considerable size, and may infest the host for a long period without giving rise to any symptoms. The positive diagnosis can be made only by finding segments of the worm in the stool. There may be colicky pains in the abdomen, and alternate diarrhea and constipation; at times there is nausea, especially when the stomach is empty. Anemia is common, especially if the *bothriocephalus latus* is the parasite present. In some cases vertigo, chorea and epilepsy are present. All the symptoms are aggravated when the stomach is empty.

Prognosis.—Only occasionally does tape-worm give rise to unpleasant symptoms. It is not always possible to remove the worm by the first dose of the vermifuge and a second dose of the remedy may be needed before the head is obtained.

Treatment.—All vegetables should be thoroughly washed before being eaten. Meat and fish should be thoroughly cooked. All feces which may contain segments or ova should be destroyed that they may not be ingested by hogs or cattle. To rid the intestines of the tape-worm, for at least two days before

the time set, the patient should reduce the size of his meals and during this time the bowels should be well emptied. The night before taking the vermifuge a light supper should be partaken of, consisting of a piece of toast or two crackers and a glass of milk. This should be followed by a cathartic that will clear the bowels thoroughly. The anthelmintic should be administered the following morning before any food has been taken. By this means the head of the worm is unprotected and it is more apt to loosen its hold. About two hours after taking the vermifuge another laxative should be taken. After taking the vermifuge, when the bowels move, the stools should be passed into a vessel containing warm water and the worm should be carefully examined to ascertain if the head has been passed. If this is not found the worm will grow again in from three to four months. Another attempt to remove the whole worm should be made two or three days following the giving of the medicine if the first trial fails.

Cucurbita pepo semen (*Pumpkin seed*), from one to three ounces of the pulp of the seed macerated and mixed with honey and spread like jam on a thin slice of bread, is mild and highly useful.

Filix mas (*male fern*) is employed extensively. The dose is from one to two drachms, preferably in capsules. If there is a tendency to vomit after taking it, this may be controlled by swallowing black coffee or lemonade. A saline should be employed before and following its use rather than castor oil as the latter causes the toxic principle, filicic acid, to be absorbed.

Pelletierine tannate is used by many. It is administered in capsule, preceded and followed by a cathartic. The dose for an adult is four grains. It should be given with great care to children.

Naphthalinum, Thymol, Santonin and *Carbolic acid* are also used.

Kamala one-half ounce to be taken in two doses diluted with water.

Kousso, an infusion with flowers, one ounce to eight ounces of water. This should be taken in the morning and followed by a cathartic.

ASCARIS LUMBRICOIDES.

These are known as round worms or spool worms. They resemble earth worms. They gain access to the intestine through drinking water, and from vegetables that have not been properly cleansed before being used. There are usually only six or eight in the intestine, but there may be many more.

The symptoms they give rise to are never so distinctive that the cause may be definitely determined. There is abdominal pain, borborygmus, irregularity of the bowel movement, itching of the anus, anorexia, nausea, vomiting, offensive breath; while reflexly they may produce vertigo, headache, inequality of the pupils, eclampsia, chorea, and muscular spasms. The patient often complains of itching of the nose, and digs the fingers into the nostrils. He often is emaciated, is pallid and has dark rings about the eyes. The worms may occupy the whole lumen of the bowel and give rise to intestinal obstruction.

They wander about and may close the ductus choledochus or pass through the stomach, esophagus, and have been known to pass during sleep into the larynx and be the cause of death. They have been found in intestinal perforation, appendiceal and perineal abscesses.

Prognosis.—This is favorable unless complications arise.

Diagnosis.—This can only be made positively by the presence of the worm or its ova in the feces.

Treatment.—The prophylactic treatment consisting in personal and domestic cleanliness.

In these cases the remedy should be selected on the indication. The largest worm of this class that I have ever seen was removed by the use of *Colocynthis* prescribed on the totality of the symptoms.

Santonin is indicated in many cases when the presence of the worm has been demonstrated. The symptoms are similar to those of *Cina*.

Cina is of service in children when the pupils are dilated, the face is pale and there are dark rings about the eyes. The child grinds its teeth during sleep, picks and bores at its nose, and cries out during sleep.

Naphthalin has been employed and should be studied.

Mercurius has been of service when the general symptoms call for it.

Antimonium crudum, *Stannum* and *Spigelia* should each be studied.

OXYURIS VERMICULARIS.

Synonyms.—Seat-worms, pin worms, thread worms. These are acquired by swallowing the ova.

The infection often takes place between bed fellows and domestic servants. Children, women and the insane are most frequently infected. The worms are small, fine bodies and they may be observed in the stool as living, moving masses.

They give rise to intolerable itching of the anus and an offensive breath, nausea, vomiting, abdominal pain, together with headache, vertigo and itching of the nose.

When they are present in large quantities the mucous membrane presents a rough felt-like appearance. At times the worms crawl over the perineum into the vagina or beneath the prepuce and cause a muco-purulent discharge. While these worms are not dangerous, yet it frequently requires care and perseverance to eradicate them.

Diagnosis.—Careful examination of the rectum reveals their presence. They and the eggs may also be found in the feces.

Prognosis.—This is favorable, although it is often difficult to remove them.

Treatment.—This requires patience, for the eggs are continually hatching, so the treatment must be prolonged. The parts should be kept clean. When undertaking the treatment the bowels should be evacuated by means of an enema of warm water containing a drachm of borax to the pint of water. Fol-

lowing this an enema of half a pint of warm bichloride solution 1 to 10,000 should be used. This should be retained for ten minutes. This should be repeated every second night. Some prefer an infusion of quassia 1 to 100 in cold water. In infusion, garlic, asafoetida, tannic acid, vinegar or oil of eucalyptus are of service.

The internal remedy should not be neglected in these cases, and they are practically those mentioned in *ascaris lumbricoides*.

ANKYLOSTOMA DUODENALE.

Symptoms.—Tropical chlorosis, tunnel anemia, miner's anemia, brickmaker's anemia.

Etiology.—Ankylostoma is found in the Orient and many parts of Europe. The infection usually takes place through water that is polluted with fecal matter.

Pathology.—The ankylostoma duodenale is a small, cylindrical worm. The males are from 6 to 10mm. in length, while the females are about 18mm. The ankylostoma are found especially in the jejunum and ileum. They attach themselves by suction to the intestinal mucous membrane and extract blood from their host. After death they may be found loose or attached to the mucous membrane, which shows extravasations of blood at various points.

All the viscera are pale and anemic, and a fatty degeneration of the myocardium and cells of the liver is common.

Symptoms.—There is gradual progressive anemia and a general pallid appearance dependent upon the

obstruction of the blood by the parasites. The manifestation of anemia appears within six weeks after the infection takes place. Examination of the blood shows the red blood corpuscles to be diminished to one-third their normal number, and that the hemoglobin percentage is correspondingly low. In proportion as the anemia advances, the right side of the heart is dilated, and an anemic systolic murmur is heard over the right auricle, while over the internal jugular a venous murmur may be heard. A thrill may be palpable. A cardiac systolic arterial sound is audible over the larger arterial trunks. Cutaneous edema may develop and fluid may accumulate in the serous cavities. Hemorrhages may occur at various points. The appetite is impaired and the thirst is increased. The urine is increased and contains indican. The bodily temperature is subnormal.

Diagnosis.—This is based upon the clinical history of the case and the demonstration of the parasites in the stool. It should be distinguished from progressive pernicious anemia, and from carcinomatous cachexia.

Prognosis.—In cases where treatment is sought early and the physician's instructions are carried out, recovery is the rule. But in many of these cases, medical assistance is not sought early, the anemia is marked, and the instructions are not carried out faithfully and death results.

Treatment.—Those infected should be quarantined, and workmen in infected districts should eat with perfectly clean hands and every care should be exer-

cised around water-closets. Those infected should be in a hospital and should have a nutritious diet. They should be given some preparation that will kill the parasites, as an extract of *filix mas* in doses ranging from $2\frac{1}{2}$ to 5 fluidrams; following this, a microscopic examination of the feces should be made, and after a few days the remedy should be repeated till the parasites are known to be destroyed.

ANGUILLULA INTESTINALIS AND ANGUILLULA STERCORALIS—VINEGAR EEL.

The latter is supposed to be an earlier stage of development of the former. These parasites have each been found in the stools of cases of tropical diarrhea, especially the diarrhea of Cochin China. The *anguillula intestinalis* is found especially in the small intestine, while *anguillula stercoralis* occurs throughout the entire large intestine.

Treatment.—In Cochin China the treatment consists in administering fifteen grains of *Thymol* every hour, and it is said to be very efficacious.

ASCARIS ALATA.

This is the round worm of cats and dogs. It may be found in man. The symptoms and treatment are similar to those of the ordinary round worm.

. TRICHOCEPHALUS DISPAR.

This is the whip worm and is found in great numbers in the cecum and colon of people in certain parts of Europe. It frequently causes anemia and diarrhea.

ACUTE PERITONITIS.

Definition.—This is an acute inflammation of the peritoneum.

Etiology.—It is the result of wounds, bruises, and perforation of the stomach, duodenum, and small intestines, of the appendix, and the colon in malignant diseases. It develops from acute infection of the pelvis in women as after parturition. It results from rupture of hydatid cysts and of abscess of the various organs. The pathogenic germs that give rise to peritonitis are bacilli coli communis, streptococci, staphylococci, pneumococci and tubercule bacilli.

Pathology.—In the early stages the peritoneum is roughened and congested. The intestines are distended with gas. In a short time there is an inflammatory exudate on the surface of the peritoneum. This may consist of fibrin only, or serum and fibrin, or pus or bloody serum, especially if due to an external wound. The coils of intestine are more or less adherent to one another. In cases of perforation, carcinoma and rupture of the uterus, the serum is mixed with septic material and the odor is foul. The amount of fluid varies. In long standing cases the adhesions become dense bands of tissue. In the circumscribed form the adhesions may wall off collections of pus or fluid.

Symptoms.—There is an acute abdominal pain with tympanites, nausea, vomiting, constipation, and elevation of temperature. The pulse is small, rapid, tense and wiry. The face is drawn and the expres-

sion is anxious, the breathing is shallow, rapid and of the thoracic type. The abdominal pain and tenderness are so intense that the patient dreads the slightest movement or pressure. The thighs are flexed on the abdomen to relax the abdominal parietes. The body is often covered with a cold sweat and collapse may be present. Should pus form, there will be rigors and hectic fever. If the process is putrid, death speedily results from septic intoxication.

Diagnosis.—This is based on the sudden onset, tenderness, distension and collapse. If the process is localized and a collection of pus is near the surface, fluctuation may be determined.

ACUTE PERITONITIS.

1. The pain is lancinating.
2. Tenderness is general and acute.
3. Constipation is the rule.
4. Nausea and vomiting are decided.
5. There is peritoneal effusion.
6. Constitutional disturbances are profound.
7. Rigors and fluctuating temperature.
8. The causes of peritonitis are found in the history or examination.

ACUTE ENTERITIS.

1. The pain is colicky.
2. Tenderness not so general nor is it so acute.
3. Diarrhea is the rule.
4. They are not so decided.
5. There is no effusion.
6. Not so profound.
7. Not present.
8. Have a different etiology.

ACUTE PERITONITIS.

1. The vomiting presents nothing peculiar.
2. The pains are sharp and lancinating.
3. The tenderness is exquisite.

ACUTE INTESTINAL OBSTRUCTION.

1. The vomiting soon becomes stercoraceous.
2. The pains are colicky.
3. Not so tender.

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|---|--|
| 4. No visible peristalsis. | 4. Visible peristalsis may be present. |
| 5. Paralysis of the bowels may be present. | 5. It is not present. |
| 6. The constipation may yield to treatment. | 6. Will not yield. |

ACUTE PERITONITIS.

1. Fever is present.
2. The pain persists and is aggravated by friction.
3. The etiology can usually be determined and would lead to the diagnosis of peritonitis.

INTESTINAL COLIC.

1. Fever is absent.
2. The pain is relieved by friction.
3. Would lead to a diagnosis of intestinal colic.

ACUTE PERITONITIS.

1. Pain is intense, lancinating and quite constant.
2. There are gastro-intestinal derangements.
3. Fever is present.

SUBACUTE RHEUMATISM.

1. The pain is less severe and is not as constant.
2. There are no gastro-intestinal derangements.
3. Fever is not present.

Hysterical peritonitis is at times difficult to distinguish from simple acute peritonitis.

Prognosis.—In general peritonitis this is unfavorable, unless operative interference is resorted to early and the peritoneal cavity opened and drained. The same is true of the localized form.

Treatment.—Much can be accomplished in the way of prevention by attention to asepsis and antisepsis in surgery and obstetrics.

The early recognition and skilful management of appendicitis has greatly reduced the number of cases of general peritonitis. The patient should be kept quiet in bed. All pressure should be removed from the abdomen. The diet should consist of nothing

but fluids. External applications, either in the form of a poultice or ice bag, should be used, according as the patient prefers. Heat may be applied in the form of a hot water bag, or a flannel wrung out of hot water and covered with oil silk, or by a flax seed poultice, changed often and kept hot by means of oil silk. In some cases cold is preferred. If there is positive evidence that there is no perforation of the bowels the use of a cathartic may be considered. But an enema of oil followed by a copious high injection of warm water is beneficial. If excessive meteorism is present, turpentine stupes or an enema in which a few drops of turpentine have been added is of service. If vomiting is a pronounced feature, all food should be withheld. Pieces of ice held in the mouth or swallowed may assist, in other cases teaspoonfuls of hot, strong black coffee may be well borne.

Aconitum napellus.—This remedy should be studied in the early history of those cases in which the attack is the result of exposure and cold. The skin is dry and hot, the pulse is full, hard and rapid, the respirations are rapid and the temperature is high. The patient is anxious and restless; there is great thirst with vomiting. The urine is scanty and of a dark red color. The abdomen is swollen, burning and hot. There are sharp cutting pains through the abdomen.

Belladonna.—When this remedy is indicated the pulse is full and strong. There is much throbbing of the carotids. The face is flushed, the eye seems to protrude and the pupils are dilated. The abdomen is distended, painful and the patient complains of burn-

ing, cutting colicky pains which are worse from the slightest motion, or pressure. When this remedy fails to give the desired result, atropine should be compared.

Bryonia alba should be studied when serous effusion has taken place. There are stitching, lancinating pains in the bowels, which are rendered worse on motion. The patient is thirsty and desires large quantities of water. The mouth, lips and tongue are very dry. The tongue has a white coating. The bowels are constipated and the patient complains of nausea when compelled to move.

Mercurius corrosivus should be remembered in those cases in which the exudate is purulent. The surface is cold. There are irregular chills, and perspiration which does not afford the patient any relief. The abdomen is distended and painful to the touch. There is foul odor from the mouth. The stools are mucous, bloody in character and are attended with violent burning, cutting pains in the abdomen, and there is a constant tenesmus. The feet and legs are edematous. The patient is emaciated and complains of great weakness.

Cantharis is indicated in cases that are attended with violent burning and cutting pains in the abdomen and extensive tympanites. There is great prostration and painful urination.

Colocynthis is indicated in cases characterized by stinging, lancinating, burning pains in the abdomen which is distended and tympanitic. The patient complains of violent, distressing pains during stool.

The pulse is small and rapid. The extremities are cold. Enteritis may be associated with the peritonitis.

Veratrum album is indicated in those cases that have been preceded by a condition of enteritis. There is copious and frequent vomiting. The face looks pale and is sunken and is cold to the touch. He is thirsty, restless and there is feeling of anxiety.

Arsenicum album should be carefully compared with *Veratrum album*. The pains are violent and colicky. There is the sensation of burning and thirst and the general symptoms that should lead to its selection.

Sulphur fills a place and is indicated in these cases when another remedy, although apparently indicated, has not caused absorption of the fluid. In these cases there is a lack of reaction, recovery is not taking place, and the patient complains of great weakness. If a hectic fever is present, or if ulceration is taking place, the use of this remedy is but a loss of time.

When a typhoid condition develops, *Baptisia*, *Rhus toxicodendron*, *Arnica* and *Muriatic acid* should be studied.

When suppuration is threatened, *Mercurius corrosivus*, *Chininum arsenicosum* and *Sulphur* should be studied.

If suppuration takes place and drainage is established, *Silica*, *Hepar sulphur.* and *Calcarea sulph.* should be studied.

CHRONIC PERITONITIS.

Etiology.—This may either be local or general. The local form is common in the region of the liver,

spleen and diaphragm and various organs of the pelvis. The diffused form is observed in the pelvis especially, and is often associated with cancerous and tuberculous diseases. There are extensive adhesions in both forms.

Pathology.—There are extensive fibrous adhesions, with more or less contraction, and the peritoneum is much thickened.

Symptoms.—In some cases there are no typical symptoms, while in others there are colicky pains, constipation, which may be pronounced; contraction of the fibrous bands and enlargement of the intestines resulting in obstruction of the bowels. There may be edema of the extremities and of the abdominal wall.

Diagnosis.—This is difficult.

Prognosis.—While it may not be a cause of death, yet the patient remains an invalid and the chances of recovery even by surgical treatment are not promising.

Treatment.—The patient should live in the open air as much as possible. He should rest and have a diet that is highly nutritious. A properly applied abdominal bandage will afford some relief.

A five per cent. solution of iodine of vasogen, applied locally, may be of some service. Radical surgical measures may afford the patient relief. Repeated tapping helps many cases.

TUBERCULOUS PERITONITIS.

Etiology.—This is observed most frequently in children and adolescents up to the twentieth year of age. It may be primary or secondary. It is often

secondary to pulmonary tuberculosis and occurs as a result of swallowing tuberculous material.

Pathology.—There are deposits of tubercles in the parietal and visceral peritoneum and in the great omentum. The intestines may show ulceration. The mesenteric glands are enlarged and tuberculous. In the early stages the deposit of tubercle is of the miliary form with a serous or bloody exudate. There is also a more chronic form characterized by larger developments which show signs of a caseation and ulceration. There is also a form that may represent the final stages of the miliary type in which there is much fibroid tissue. The peritoneum and the great omentum become greatly thickened. The glands of the mesentery as well as those around the colon become enlarged and palpable in many cases.

Symptoms.—There is fever of the intermittent type, rising to 102° F. or above in the evening and falling to normal in the morning. This may last for a week or month. It is accompanied by sweating at night, but there is no shivering in septicemia. There may be no regular period for the rise of the fever, so the temperature should be taken four times a day and recorded.

If the intestines are ulcerated there will be a diarrhea and looseness of the bowels. The stools are of a brownish color and may show traces of blood. In children the stools may be greenish, containing undigested particles of food and curds of milk. The stools may be dark and very offensive.

While there is usually no pain referred to the ab-

domen, yet in some cases pain is paroxysmal and severe. If there is no intestinal ulceration, constipation is the rule. There are cases in which the abdomen is slightly enlarged, and palpation reveals an increased resistance. In other cases ascites is the most prominent symptom. In another class of cases the enlarged glands may be felt upon palpation.

Diagnosis.—This is based upon the presence of pyrexia and the physical finding of the abdomen. Enlargement of the glands due to lymphadenoma or lymphosarcoma should be distinguished by the greater enlargement of the glands in these conditions.

Prognosis.—In those cases in which tuberculous enteritis is not present recovery usually takes place in the course of a few weeks or months. In cases associated with tuberculous perihepatitis the prognosis is bad.

Treatment.—In all these cases rest should be insisted upon, till the temperature remains normal. The patient should be kept in the open air. A period at the seashore is beneficial. If intestinal ulceration is present the diet should be confined to milk. If there is no intestinal ulceration the diet should be abundant and one that is highly nutritious and easily digested, as eggs, broiled meats, fresh butter and milk stews. In cases of miliary tuberculosis the opening of the abdominal cavity and draining the fluid will be found to give better results than when it is flushed and drained. In these cases there is usually a local tuberculous focus that should if possible be located and removed.

The remedies for this condition should be selected on the totality of the symptoms. Of the remedies that have been employed with the greatest degree of success are *Iodine*, *Calcium iodide*, *Arsenic iodide*, *Iodoform* 1x., *Calcareo carb.*, *Calcareo phos.* and *Tuberculinum* (this in the 30th and 200th).

ASCITES.

Synonym.—Hydroperitoneum.

Definition.—This is a collection of serous fluid in the peritoneal cavity.

Etiology.—This occurs either as a result of an increased blood pressure in the branches of the portal veins or an abnormal permeability of the walls of the veins. There may be a portal stasis the result of a chronic interstitial hepatitis or other diseases of the liver. Stenosis of the hepatic veins is an occasional cause, as are nephritis, carcinoma, pulmonary tuberculosis, chronic diarrhea and chronic suppuration. Chylous ascites is caused either by an obstruction of the thoracic duct or lacteals.

Pathology.—When extensive, it gives rise to distension of the abdomen. There may be but a small quantity of fluid of a greenish-yellow color. If jaundice is present it is colored by the biliary coloring matter. The fluid is alkaline in reaction and contains some detached endothelial cells and albumin. In the chylous form, the fluid resembles milk.

Symptoms.—The principal symptom is the presence in the abdominal cavity of a free movable accumulation of fluid which has developed without

fever and without pain. If the transudation is of considerable amount, the size of the abdomen is considerably increased and may attain enormous proportions. In the erect posture the fluid accumulates in the lower half of the abdomen and produces a pendulous form of an abdomen. In the recumbent posture the lateral aspect of the abdomen is expanded, while the anterior aspect is flattened. The umbilicus is either obliterated or it protrudes like a hernia.

The cutaneous abdominal veins may be greatly distended and tortuous. In the dorsal position a tympanitic note will be developed over the upper anterior portion of the abdomen, and a dull note over the lower and lateral portions, and the fluid will be found to change its position as the patient moves.

Dyspnea will be developed if the ascites is extensive.

Diagnosis.—The diagnosis should be arrived at easily from the above symptoms. It should be distinguished from the ovarian cyst, chylous fluid, distended bladder, hydronephrosis, cysts of the pancreas, hydatid cysts.

ASCITES.

1. There is a history of some of the abdominal diseases before ascites develops.
2. The enlargement extends across the body when the patient sits and changes its position when in the reclining posture.
3. Fluctuation is general from side to side.

OVARIAN CYSTS.

1. There is usually a history of good health before the development.
2. The enlargement is unilateral at first, but as it enlarges becomes central.
3. Fluctuation corresponds to the limits of the tumor.

- | | |
|--|---|
| 4. When standing the upper line of dulness is concave. | 4. When standing the upper line of dulness is limited by cyst wall. |
|--|---|

ASCITES.

1. There is a previous history of disease of the liver, heart or kidneys.
2. There is no pain.
3. The abdomen is uniformly enlarged.
4. Fluctuation is detected in any direction.
5. The area of dulness changes as the patient changes her position.

CHRONIC PERITONITIS.

1. A previous history of acute peritonitis.
2. Pain is present.
3. There are irregular enlargements.
4. Fluctuation is circumscribed.
5. The area of dulness is usually not affected by movement of the patient.

Prognosis.—This depends upon the curability of the primary disorder. Many of these cases can be controlled for a time, but in time the methods employed fail and the patient dies of excessive accumulation of fluid in the abdominal cavity, which causes asphyxia or paralysis of the heart.

Treatment.—This consists of the management of the underlying condition, which, if possible, should be sought out in each case. Abdominal puncture affords great relief. It is harmless when properly performed and it should be repeated as required. Cases are on record in which the fluid has not returned after a puncture. Nitrogenous articles should enter into the diet to maintain the normal proportions of the blood. A milk diet is at times serviceable, especially if the kidneys are inactive.

Dr. Hale advised rubbing into the abdomen twice a day a mixture composed of oil of turpentine half an ounce, ichthyol half an ounce, vaseline six ounces.

Active purgatives and diuretics should be avoided, as they do more injury than good.

Apocynum cannabinum is beneficial in many of these cases. It should be given in doses of twenty to thirty drops of an infusion or from five to eight drops of the tincture four times a day. Some patients do not take this remedy well.

Digitalis should be thought of especially if the heart is dilated and a general anasarca is present.

Arsenicum album should be studied in those with cirrhotic liver, and who are alcoholics, and in the aged who suffer from weak heart.

Cinchona should be remembered in those who suffer from anemia following diarrhea.

Chloride of gold and *sodium*, *Plumbum acetate* should be studied in cases of hepatic cirrhosis.

Helleborus, *Iodine* and *Iodoform* should be remembered in those cases in which the ascites is dependent upon tuberculosis.

Bryonia and *Terebinthina* are also indicated at times.

NEOPLASMS OF THE PERITONEUM.

Cancer of the peritoneum is usually secondary to similar disease in other organs. The secondary forms are either metastatic in origin or the result of a spread by contiguity. These occur most freely as epithelial carcinoma, occasionally as a diffused colloid form. The primary growths are probably endothe-liomata.

Symptoms.—It occurs late in life and is most com-

mon in women. Apart from the cancerous cachexia it presents many of the symptoms of chronic peritonitis; ascites is common and may obscure the physical finding. In some cases nodules may be felt beneath the skin. The inguinal and retro-peritoneal glands are frequently enlarged.

The recognizing of a primary cancerous disease in another organ as the stomach, uterus or rectum assists in the diagnosis. Should it be of the miliary type it will be difficult to distinguish it from peritoneal tuberculosis. Aspiration may reveal a hemorrhagic fluid which is more characteristic of cancer than of tuberculosis. The fluid also reaccumulates more quickly in cancer cases and should the growth be colloid in nature there will be a firm gelatinous substance present, but no ascites.

The treatment of these cases is symptomatic.

BENIGN TUMORS.

While these are rare, lipomata, fibromata, myxomata, pseudomyxomata, angiomata, lymphomata, neuromata and teratomata are met with, as well as hydatid, dermoid and blood cysts. As it is difficult to make a diagnosis of the condition, a laparotomy for diagnostic purposes is advisable.

The treatment is surgical.

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